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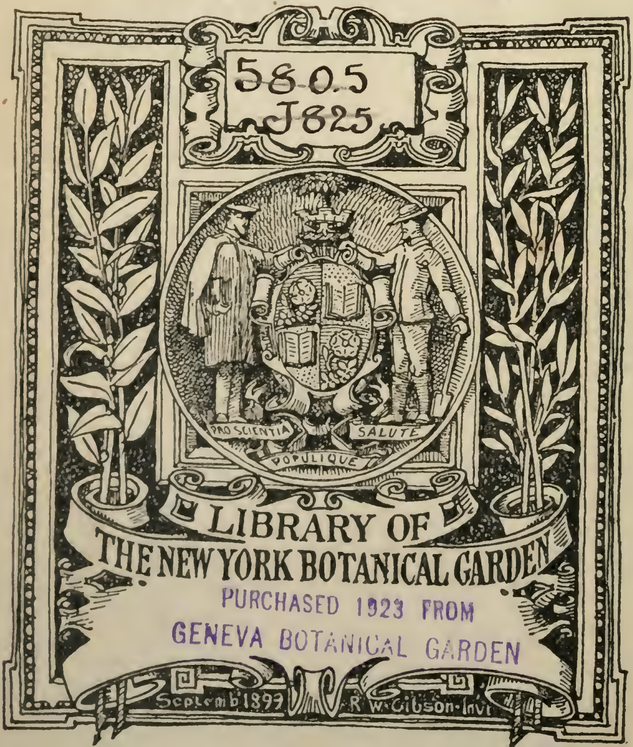
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THE

# JOURNAL OF BOTANY

## BRITISH AND FOREIGN.

Edited by

JAMES BRITTEN, F.L.S.,

BRITISH MUSEUM (NATURAL HISTORY), SOUTH KENSINGTON

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THE

# JOURNAL OF BOTANY

BRITISH AND FOREIGN.

## NEW PETALOID MONOCOTYLEDONS FROM CAPE COLONY.

By J. G. Baker, F.R.S., F.L.S.

### Dioscoreaceæ.

**Dioscorea Burchellii**, n. sp.—Stems slender, widely twining, glabrous. Leaves alternate; petiole $\frac{1}{4}$–$\frac{1}{2}$ in. long; blade simple, ovate-lanceolate, shallowly cordate at the base, always entire, 1–2 in. long, moderately firm in texture, bright green, triplinerved. Male flowers in lax subspicate racemes 1–2 in. long, with a slender straight glabrous axis; pedicels very short, subtended by a minute ovate-lanceolate bract. Perianth campanulate, 1-12th in. long; tube very short; segments oblong, obtuse. Stamens 6; filaments incurved, longer than the globose anthers. Rudimentary ovary globose. Female flowers and fruit unknown.

Hab. South central district, *Burchell* 5728! Kathery, *Hutton*! Kaffraria, *Mrs. Barber & Mr. J. H. Barber*!

**D.** (Helmia) **malifolia**, n. sp.—Stems slender, twining, glabrous. Leaves alternate; petiole $\frac{1}{2}$–1 in. long; blade simple, entire, broad-ovate, truncate or slightly cordate at the base, 1–2 in. long and broad, moderately firm in texture, green and glabrous on both surfaces, minutely mucronate, 5-nerved from the base to the apex. Male flowers in copious lax fascicled racemes 2–3 in. long, with a flexuose or straight glabrous rachis; pedicels short, ascending; bracts ovate-acuminate, minute. Perianth glabrous, 1-16th to 1-12th in. long; tube short; segments oblong, obtuse. Fertile stamens 6, much shorter than the perianth-segments. Female flowers in lax racemes 4–6 in. long. Ovary cylindrical-triquetrous, glabrous, $\frac{1}{3}$ in. long. Capsule obovate-triquetrous, emarginate, an inch long. Seeds with a large basal wing.

Hab. Natal, *Sanderson* 232! *Gerrard* 444! *Cooper* 3247! *Wood* 753! Kaffraria, *Drège* 4500!

**D.** (Helmia) **Mundtii**, n. sp.—Stems very slender, wide-twining, glabrous. Leaves alternate; petiole $\frac{1}{2}$–1 in. long; blade simple,

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entire, ovate, deeply cordate at the base, 2–3 in. long, mucronate, membranous, glabrous, triplinerved. Male flowers in lax fascicled simple racemes 3–4 in. long, with a straight glabrous axis; pedicels short, subtended by a pair of minute ovate-acuminate bracts. Perianth infundibuliform, glabrous, 1-12th in. long; segments oblanceolate, obtuse. Fertile stamens 6, nearly as long as the perianth-segments. Female flowers also in lax simple racemes. Capsule oblong-triquetrous, glabrous, $1\frac{1}{4}$ in. long, $\frac{5}{8}$ in. broad. Seeds winged at the base only. *Teschidinaria nemorum* Mundt, Exsic.

Hab. Central district, *Mundt*! *Drège* 8559!

**D. undatiloba,** n. sp. — Stems very slender, wide-twining, glabrous. Leaves alternate; petiole about an inch long; blade cordate-deltoid, membranous, glabrous, bright green, 2–3 in. broad, not so long, palmately 7-lobed more than half-way down to the petiole, the central lobe the longest, conspicuously mucronate, repand-pinnatifid, triplinerved from base to apex, the two lobes on each side of it also repand, obliquely truncate at the apex, the four others shorter and not lobed. Male flowers in lax simple racemes 1–2 in. long; pedicels nearly as long as the flowers, each subtended by an ovate-lanceolate bract. Perianth campanulate, $\frac{1}{8}$ in. long; segments ovate, acute. Female flowers in lax spikes 3–4 in. long. Ovary clavate, glabrous, $\frac{1}{4}$ in. long. Female perianth campanulate; segments ovate-lanceolate. Fruit not seen.

Hab. Natal, *Gerrard* 1617!

**D. Forbesii,** n. sp. — Stems slender, wide-twining, shortly pubescent. Leaves alternate; petiole $\frac{1}{2}$–1 in. long; blade digitately compound; leaflets 5, sessile, oblanceolate-oblong, obtuse, 1–2 in. long, distinctly mucronate, moderately firm in texture. Male flowers in shortly-peduncled geminate spikes with a slender very hairy rachis. Perianth campanulate, densely villose, 1-12th in. long, subtended by an ovate-lanceolate acuminate bract a little shorter than the flower. Fertile stamens 6; filaments very short; anthers globose. Rudimentary style very short. Female flowers and capsule not seen.

Hab. Delagoa Bay, *Forbes*!

**D. Tysoni,** n. sp. — Stems slender, wide-climbing, glabrous. Leaves alternate; petiole $1\frac{1}{2}$–2 in. long; leaflets 5, stalked, obovate-oblong, membranous, glabrous, 1–2 in. long, conspicuously mucronate. Male flowers in 2–4-nate lax simple nearly sessile racemes 1–2 in. long; pedicels $\frac{1}{8}$–$\frac{1}{6}$ in. long, with no bract at the base, but bearing a minute bracteole just beneath the flower; rachis obscurely adpresso-pubescent. Perianth campanulate, $\frac{1}{8}$ in. long, with a short tube and oblong segments.

Hab. Griqua-land, near Fort Donald, *Tyson* 1646! (Herb. Bolus).

### Hypoxideæ.

**Hypoxis** (Ianthe) **Scullyi,** n. sp. — Corm globose, $\frac{1}{2}$ in. diam. Leaves very thin, linear, membranous, 6–9 in. long, $\frac{1}{4}$–$\frac{1}{3}$ in. broad at the middle, distinctly distantly nerved. Pedicels 3–4 to a corm, slender, glabrous, 1-flowered, 3–4 in. long. Ovary clavate, glabrous, $\frac{1}{4}$ in. long. Expanded limb of perianth bright yellow, an inch in diameter; segments oblong-lanceolate, $\frac{1}{2}$–$\frac{5}{8}$ in. long. Stamens half as long as the segments.

Hab. Namaqua-land, *Scully*! Received very lately from Mr. Scott Elliott.

**H.** (Euhypoxis) **Woodii,** n. sp.—Corm oblique-oblong, crowned with a ring of slender fibres. Leaves about 6, linear or lanceolate, thin in texture, with slender ribs, quite glabrous on both faces and margin, the longest at the flowering time about a foot long, $\frac{1}{4}$–$\frac{1}{2}$ in. broad. Peduncle slender, slightly hairy, 4–5 in. long; flowers 2–3, corymbose; pedicels $\frac{1}{2}$–1 in. long; bracts linear-setaceous. Perianth-limb $\frac{1}{4}$–$\frac{1}{3}$ in. long; segments oblong, acute, yellow, the outer hairy on the back. Stamens half as long as the perianth-segments. Stigmas concrete.

Hab. Natal; Inanda, *Wood* 426 a!

**H.** (Euhypoxis) **acuminata,** n. sp. — Corm not seen. Leaves 6–8, erect, linear, not rigid, loosely hairy all over, 12–15 in. long, $\frac{1}{2}$ in. broad low down, tapering gradually to the acuminate apex. Peduncles single, weak, villose, 6–8 in. long; flowers 2–4, subracemose; lower pedicels $\frac{1}{4}$–$\frac{1}{2}$ in. long; bracts small, linear-subulate. Ovary obconic, densely villose, $\frac{1}{6}$ in. long. Perianth-limb $\frac{5}{8}$–$\frac{3}{4}$ in. long; segments oblong-lanceolate, yellow, the outer densely villose on the back. Anthers lanceolate-sagittate, versatile, $\frac{1}{6}$ in. long. Stigmas concrete. Capsule turbinate, villose, $\frac{1}{4}$ in. long.

Hab. Natal; Inanda, *Wood* 1347!

**H.** (Euhypoxis) **colchicifolia,** n. sp. — Corm globose, 2 in. diam., crowned with bristles. Leaves 6–8, oblong-lanceolate or lanceolate, moderately firm in texture, strongly ribbed, rather glaucous, quite glabrous on both surfaces and margin, the longest at the flowering time 6–8 in. long, 1$\frac{1}{2}$–2 in. broad. Peduncle slender, much shorter than the leaves; flowers 3–4, corymbose; pedicels $\frac{1}{2}$–1 in. long; bracts linear. Ovary obconic, hairy, $\frac{1}{6}$ in. long. Perianth-limb $\frac{1}{2}$–$\frac{5}{8}$ in. long; segments oblong, yellow, the outer green and hairy on the back. Stamens half as long as the perianth-segments; anthers lanceolate, $\frac{1}{6}$ in. long; filaments shorter. Stigmas concrete.

Hab. Described from a plant flowered by Mr. Wm. Bull in 1884. Exact locality not known.

**H.** (Euhypoxis) **oligotricha,** n. sp. — Corm not seen. Leaves erect, oblong-lanceolate, glabrous, subcoriaceous, strongly ribbed, 15–18 in. long, 1$\frac{1}{2}$–2 in. broad at the middle. Peducles ancipitous, glabrous, 6–8 in. long. Flowers 10-15 in a lax raceme 3–4 in. long; lower pedicels $\frac{1}{4}$–$\frac{1}{3}$ in. long; bracts linear, $\frac{1}{2}$–1 in. long. Ovary globose, nearly glabrous, $\frac{1}{6}$ in. long and broad. Perianth-limb $\frac{1}{2}$–$\frac{3}{4}$ in. long; segments oblong-lanceolate, the outer with a few scattered adpressed hairs on the back. Anthers lanceolate, $\frac{1}{4}$ in. long. Stigmas concrete.

Hab. Natal; coast of Inanda, *Wood* 1170!

### Vellosieæ.

**Vellosia villosa,** n. sp. — Fruticose, with woody branches an inch thick, coated with many sheaths of parallel hairy wiry fibres.

Leaves linear-subulate, falcate, rigidly coriaceous, 4–6 in. long, densely clothed throughout with short spreading whitish hairs. Peduncle villose, 3–4 in. long. Ovary turbinate, densely villose, ½ in. long. Perianth-limb 1¼ in. long; segments lanceolate, whitish, the outer villose on the back. Anthers linear, ½ in. long. Style cylindrical, as long as the anthers.

Hab. Transvaal; Hontbosh, *Rehmann* 5792!

**V. humilis**, n. sp. — Herbaceous, acaulescent, with a tuft of strong wiry root-fibres. Rosettes of leaves densely cæspitose, surrounded by a dense mass of sheaths, composed of matted parallel drab wiry fibres ½–¾ in. long. Leaves linear, falcate, glabrous, rigidly coriaceous, strongly ribbed, 1–2 in. long. Peduncle very slender, 1–2 in. long, rough with glands. Ovary obconic, 1-12th in. long and broad. Perianth-limb ¼ in. long; segments oblong-lanceolate, the outer green and glabrous on the back. Anthers linear, nearly as long as the perianth-segments.

Hab. Banks of the Ampages River, *Burke* 122! Transvaal, *Rev. W. Greenstock*! Boshveld, between Eland's River and Klippan, *Rehmann* 5133! Also Mozambique, *Sir John Kirk*!

# PLANTS FOUND NEAR NEW ROSS, IRELAND.

By G. Barrett-Hamilton and L. S. Glascott.

The plants mentioned in the following list have been found in the counties of Wexford, Waterford, and Kilkenny, for the most part during the years 1887 and 1888. New Ross is situated near the head of the tidal portion of the Barrow, where this river divides the counties of Wexford and Kilkenny. Alderton and Kilmanock both lie lower down the river, and are on the east (or Wexford) bank of the estuary, about six or eight miles from the sea. The term "Pill" is locally applied to the brackish creeks, through which small streams discharge themselves into the estuary.

The letter D after a name indicates that the plant is new to District 2, 3, or 4 of the 'Cybele Hibernica.' We are much indebted to Mr. A. G. More for his kindness in looking at nearly all the plants mentioned in the list, and also for looking over the list itself; indeed, had it not been for his help, this list would never have appeared.

## In the County of Wexford.

*Ranunculus cœnosus* Guss. In a ditch, Alderton (L. S. G.).—*R. trichophyllus* Chaix. D 4. In the marsh-drains near "The Causeway," Kilmokea (L. S. G.).—*R. Lingua* L. Knockie Bog (G. B.-H.). Frequent in drains and boggy places about Alderton (L. S. G.). — *R. parviflorus* L. A troublesome weed in the garden at Alderton; also in a field overhanging the river near Piltown Stage, and near the "Island Quay" (L. S. G.).

*Papaver Argemone* L. In a high field by the river near Piltown Stage (L. S. G.).

*Sinapis alba* L. On a fence at Priest Haggard, and in several places on "The Island," near Cheek Point (L. S. G.).

*Cochlearia anglica* L. Near the New Bridge, Kilmanock (G. B.-H.). Abundant along the sides of "The Pill" near Alderton; near Killowen, by the river, and on Fisherstown Marsh-bank (L. S. G.).

*Lepidium Smithii* Hook. Frequent (G. B.-H.). Frequent on fences, especially by the river (L. S. G.).

*Polygala depressa* Wend. D 4. Frequent in heathy places (L. S. G.).

*Arenaria trinervia* L. At the foot of a tree, Alderton (L. S. G.).

*Malva moschata* L. Not uncommon about Kilmanock; a variety with *white* flowers grows near the river at Dunbrody Park (G. B.-H.). Frequent in the neighbourhood of Alderton (L. S. G.).—*M. rotundifolia* L. Kilmanock (G. B.-H.).

†*Lavatera arborea* L. D 4. On the rocks at Duncannon Fort, but, as it is cultivated in cottage gardens, it may be an escape (G. B.-H.).

*Geranium columbinum* L. In a lane not far from Campile (G. B.-H.). On a fence by the road on Maddox Hill, near Whitechurch (L. S. G.).

*Erodium moschatum* L'Herit. Roadside at Duncannon (G. B.-H.).

*Linum angustifolium* Huds. In a field at Glendine, Arthurstown; at Fethard; one plant by a corn-field on "The Island," near Kilmanock (G. B.-H.). Plentiful in a light grass-field on Maddox Hill, near Whitechurch, and on the brow of a hill by the river (L. S. G.).

*Trifolium fragiferum* L. Fisherstown Marsh (L. S. G.).

*Lotus corniculatus* var. *tenuis* L. D 4. By the border of a grass-field close to Alderton House (L. S. G.).

*Pyrus Aria* Sm. One tree on the "Cliff," Kilmanock; one on the embankment; also at Alderton, by the road (possibly planted in the last locality), (G. B.-H.).

*Spergularia rupestris* Lebel. Hook Head (G. B.-H.). Arthurstown (L. S. G.).

‡*Pastinaca sativa* L. By a fence on the hill near Piltown Stage; also on a fence at the "Island Quay," near Cheek Point (L. S. G.).

*Caucalis nodosa* Scop. On a field-fence near Piltown Stage (L. S. G.).

*Rubia peregrina* L. Duncannon and Nook (G. B.-H.). The cliffs about Arthurstown (L. S. G.).

*Valerianella Auricula* DC. D 4. Near the village of Nook (G. B.-H.). — *V. dentata* All. Frequent by road-sides and in corn-fields about Alderton (L. S. G.). Common at Kilmanock (G. B.-H.).

*Dipsacus sylvestris* L. Common (G. B.-H. & L. S. G.).

†*Tanacetum vulgare* L. In several places near the Hook, and Fethard, but always by the road-sides; also at Nook, near the village. If an escape, it is well established (G. B.-H.). Ballyhack Hill (L. S. G.).

*Carlina vulgaris* L. Dunbrody Park, near the river (G. B.-H.).

*Centaurea Scabiosa* L. In many places in the neighbourhood of Kilmanock, where it is probably sown with the corn (G. B.-H.). Frequent in corn-fields and on fences (L. S. G.).

**Cichorium Intybus* L. Well established in two fields at Grange Hill, on the road between Kilmanock and Arthurstown; in this locality it has been observed for many years, and is spreading. One plant in a field near Duncannon; also at Fethard (G. B.-H.). In an old orchard, Alderton (L. S. G.).

*Helmintha echioides* Juss. Plentiful in a field between Ballinlaw Ferry and the "Island Quay" (L. S. G.).

*Echium vulgare* L. In a field at Glendine, Arthurstown (G. B.-H.). In a field on Maddox Hill, near Whitechurch (L. S. G.).

*Orobanche minor* Sutt. Pretty common in the neighbourhood of Kilmanock (G. B.-H.). Clover-fields about Alderton (L. S. G.).

*Linaria Elatine* Mill. Abundant in corn-fields about Alderton, and in one instance clothing the entire field with a thick green carpet; also on fences by roadsides in many places (L. S. G.).

*Calamintha Clinopodium* Benth. In two localities: a patch near Kilmanock, on the road to Arthurstown, where it has been observed for some years, and is spreading; 2ndly, a small patch at Curraghmore cross-roads, near Tintern, observed this year (G. B.-H.).— *C. officinalis* Mœnch. Plentiful by the river-side near the "Island Quay" (L. S. G.).

*Scutellaria minor* L. The marsh under Killowen House (L. S. G.).

*Stachys arvensis* L. Common (L. S. G. & G. B.-H.).

*Anagallis arvensis* var. *cærulea* L. D 4. In a pathway through a corn-field, Alderton (L. S. G.).

*Rumex Hydrolapathum* Huds. Common in the Lickerstown and Kilmanock drains (G. B.-H.). Fisherstown drains (L. S. G.).

*Euphorbia portlandica* L. Between Kilmanock and Nook (G. B.-H.). — *E. exigua* L. Common, especially in corn-fields (L. S. G.). Road between Kilmanock and Nook (G. B.-H.).

*Orchis pyramidalis* L. Frequent in pastures, and by the river (L. S. G.).

*Ophrys apifera* Huds. A few plants above the New Bridge, Kilmanock, near the lime-kilns (G. B. H.). Abundant on grass-banks near Piltown Stage, and near Alderton House (L. S. G.).

*Spiranthes autumnalis* Rich. Two plants appeared on the lawn at Kilmanock last year; but the grass has been cut this year, and they have not reappeared (G. B.-H.). Frequent in the neighbourhood of Alderton (L. S. G.).

*Allium vineale* L. Grass-banks near Piltown Stage (L. S. G ). In the hedges by two fields at Kilmanock, about twenty plants (G. B.-H.).

*Lemna trisulca* L. In the pond at Alderton (L. S. G.).

*Eleocharis uniglumis* Link., and *E. multicaulis* Sm. At the mouth of the "Pill," Alderton (L. S. G.).

*Scirpus Savii* Seb. & Maur. Wood above Glenwater Bay, Dunbrody Park (G. B.-H.). By the side of the "Pill," Alderton (L. S. G.).

*Carex divisa* Huds. D 4. By the New Bridge, near Dunbrody Abbey; by the Causeway, Fisherstown; on a bit of waste ground by the road-side near the "Pill," Alderton; in a lane at the back of the marshes near Killowen House (L. S. G.). — *C. vulpina* L. Common (G. B.-H.). Common about Alderton (L. S. G.). — *C. divulsa* Good. By the stream in the wood above Glenwater Bay, Dunbrody Park (G. B.-H.). — *C. extensa* Goode. Marsh near Killowen (L. S. G.). [Obs. *Carex Bönninghausiniana*, recorded in Journ. Bot. 1887, p. 348, was a mistake: the plant having been identified from imperfect specimens, proves to be a sterile form of *C. remota* (G. B.-H.).]

*Trisetum flavescens* L. Common (L. S. G.).

*Poa aquatica* L. By the side of a stream, Alderton, and near Killowen (L. S. G.). — *P. distans* L. D 4. By the road-side near the "Pill," Alderton; a large patch at the entrance to the Ballyvarna marshes (L. S. G.).

*Bromus sterilis* L. The Island, near Cheek Point (L. S. G.).

*Hordeum pratense* Huds. In many places near Kilmanock (G. B.-H.). Frequent in marshes by the river (L. S. G.).

**Alopecurus agrestis* L. D 4. In two fields, and in a wooded glen at Alderton (L. S. G.).

## IN THE COUNTY OF KILKENNY.

The following species were observed by G. Barrett-Hamilton at and above Ballinlaw Ferry during a walk up the River Barrow for about a mile and a half. Those marked D 3 are new to District 3 of the 'Cybele Hibernica':—

*Ranunculus sceleratus* L.
*Sagina nodosa* E. Meyer.
*Hypericum calycinum* L. D 3.
*Vicia angustifolia* Roth. D 3.
*Spergularia salina* Presl.
*Dipsacus sylvestris* L.
*Aster Tripolium* L. D 3.
*Centaurea Scabiosa* L.
*Carduus tenuiflorus* Curt.
*Stachys arvensis* L.
*Verbena officinalis* L.
*Glaux maritima* L. D 3.
*Samolus Valerandi* L.
*Statice bahusiensis* Fries.
*Armeria maritima* Willd.
*Plantago Coronopus* L. D 3.
*P. maritima* L. D 3.
*Salicornia herbacea* L. D 3.
*Scirpus maritimus* L.
*S. Tabernæmontani* Gmel. D 3.
*S. savii* Seb. & Maur. D 3.
*Carex vulpina* L.
*C. extensa* Good. D 3.
*Poa maritima* Wahlb. D 3.
*Festuca sciuroides* Roth. D 3.
*Hordeum pratense* Huds. D 3.

## IN THE COUNTY OF WATERFORD, FOUND BY L. S. GLASCOTT.

*Ranunculus Lingua* L. Common in streams and drains about Blenheim, near Waterford.

*Aquilegia vulgaris* L. Frequent on fences and by road-sides about Blenheim.

*Cochlearia anglica* L. D 2. Abundant in the creeks about Blenheim, and on the shores opposite Waterford city.

*Geranium pyrenaicum* L. On a fence by the road near Passage.

†*Fœniculum officinale* All. On a fence near the Dunmore cross-

roads; in a stream between Ballinakill Church and Blenheim Hill; at the foot of a Hill near Creaden Head.

‡*Pastinaca sativa* L. By a wall facing the sea at Passage.

*Dipsacus sylvestris* L. Frequent throughout the county.

**Crepis taraxacifolia* Thuill. D 2. Four or five plants of this species were growing by the side of the Avenue at Blenheim.

*Lithospermum officinale* L. Fields about Blenheim.

*Calamintha officinalis* Mœnch. Road-sides near Passage and Ballinamona.

*Hordeum pratense* Huds. The marsh under Blenheim Hill.

[Note.—*Verbascum Blattaria* L. and *Bromus madritensis* L. were gathered on a strip of waste ground at the Waterford Tramore Railway-station, where, no doubt, they were recently introduced.]

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# NOTES ON PONDWEEDS.

By Alfred Fryer.

**Potamogeton coriaceus** mihi. (*P. lucens* var. *coriaceus* Nolte).—Stems springing from a tuberous rootstock, 1–4 ft. long, stout, round, much branched from the base, or simple below in strong shoots produced late in the season. Lower branches permanently submerged; upper branches ultimately ascending to the surface and spreading into numerous branchlets, each of which is terminated by *coriaceous floating leaves*, which, from the shortness of the upper internodes of the stem, often grow in the form of a rosette. Leaves at the base of the stem often reduced to phyllodes, succeeded by one or two which have a thickened midrib slightly winged, and are bodkin-pointed; ordinary *submerged leaves stalked* or sessile, membranous, with numerous longitudinal ribs connected by transverse veins, which are often very conspicuous; *entire, without spinous denticulations*, usually *flat* or very slightly undulated, sometimes longitudinally folded and recurved, *oblong or obovate*, abruptly narrowed into a blunt, somewhat concave mucro, often gradually narrowed to the base so as to become clavate in outline, more rarely lanceolate, or elliptical and acuminate. *Upper leaves coriaceous, all stalked; lamina* 1½–3 in. long by 1–1½ in. broad, *always greatly exceeding the petiole*, with the slender midrib bordered on each side by elongate chain-like areolations, forming a narrow band of thinner texture than the opaque body of the leaf, with 8–10 *translucent lateral ribs* on each side, 2–3 of which are more conspicuous than the rest or translucent and of the same texture as the submerged leaves; *obovate*, or *roundish*, or *clavate*, rarely elliptical, somewhat abruptly narrowed into the short convex tip. Stipules herbaceous, large, blunt, slightly winged on the back, with numerous anastomosing longitudinal veins. Flower-spikes usually terminal, stout, cylindrical, dense, 1½ in. long. Peduncle very stout, swollen upwards, slightly curved at the time of flowering, but usually straight and erect in fruit. Drupelets rather small in proportion to the size of the plant; inner margin nearly straight, terminated by the short beak; outer margin semicircular, with an *acute, almost winged keel*, from which the lateral ridges are rather distant, projecting at right angles from the base of the fruit. Colour of the whole plant bright green, or brownish green, usually drying darker.

*P. coriaceus* is closely allied to *P. Zizii*, from which, however, it is readily separable in its typical state by the densely-coriaceous floating leaves, which resemble those of *P. heterophyllus* in texture, and which are *obovate*, *oblong*, or *orbicular*, not elliptical, as in *Zizii*. The whole of the foliage, too, is usually flatter, and the lower leaves have no denticulations, and are rarely crenulate when dry; they are also more coarsely reticulate, resembling in this respect those of *P. lucens*. The fruit is more acutely keeled, and with the sides much flatter than that of *P. Zizii*. From *P. lucens* the coriaceous floating leaves sufficiently distinguish it; I think we may now safely assume that *lucens* never produces coriaceous leaves; the specimens distributed by Dr. Boswell from Kinghorn Loch, Fife, certainly are a form of *P. Zizii*, and it is highly probable that some such form has in all instances furnished the reputed "*lucens* with coriaceous leaves." *P. coriaceus* in some states may be mistaken for *P. heterophyllus*, but it differs in the lamina of the coriaceous leaves always greatly exceeding the petiole in length, by the much larger lower leaves, and by the great mass of the foliage rising to the surface of the water; although, as in *P. Zizii*, some of the lower branches always remain submerged.

*P. coriaceus* seems almost equally allied to *Zizii*, *lucens*, and *heterophyllus*, states of all three of which it at times closely resembles; another remarkable resemblance—remarkable because there is no alliance—remains to be noticed: when growing in very shallow water, or exposed to the air on mud, it so closely simulates the "land form" of *P. plantagineus* as to be barely distinguishable.

As it is here sought for the first time to establish *P. coriaceus* as a *species*, the following synonymy is given:—

*Potamogeton lucens* var. *lacustre* Thore, 'Chloris des Landes,' p. 46, 1803 (or 1798?).

Mr. Bennett tells me that Nolte, in his herbarium, quotes the above synonym for his *P. lucens* var. *coriaceus*, and so I repeat it here; but, from Thore's description, "Feuilles *parfaitement elliptiques*" and "nerveures *très-saillantes*," I do not think it represents our plant, but very well agrees with Dr. Boswell's "*lucens with floating leaves*," which I am unable, on the evidence of the poor specimens I have seen, to place under *coriaceus*.

*P. lucens* δ. *coriaceus* Nolte, in Röhling's 'Deutschlands Flora,' p. 850, 1823. — This is the first publication of Nolte's plant, who sent named specimens, gathered in 1821, to the editors, Mertens and Koch.

Subsequently Nolte himself published his plant in his 'Novitiæ Floræ Holsaticæ,' 1828, p. 21, footnote (a copy of which, by the kindness of my ever-helpful friend, Mr. Bennett, I am able to give):—"Hanc quoque speciem florescentem cum coriaceis foliis natantibus æstate a. 1821 reperi, nomineque Potamogeton lucentis coriacei notatum mense Martio a. 1822, cum Cel. Professore Mertens communicavi. Post inserta est Mertens et Koch, Flor. Germ. i., p. 850."

Fries, 'Novitiæ Floræ Suecicæ,' ed. 2, 1828, p. 34:—"P. lucens γ. amphibius, anomalus, foliis natantibus chartaceis ovalibus brevissime petiolatis. . . . . Scaniæ lectus." Fries quotes Mertens and Koch, 'Deutschlands Flora,' and his description well agrees with Nolte's plant.

Reichenbach, 'Icones,' vol. vii. p. 23, 1845, gives an excellent account of this plant under "*P. lucens* var. δ. *coriaceus* Nolte," and a very good figure on tab. 37. Following Nolte, he quotes Thore's *lucens-lacustre* as a synonym.

Dr. H. Trimen, in his admirable paper on *P. Zizii* ('Journal of Botany,' Oct. 1879), amongst the synonyms of that species, doubtfully quotes Nolte's *coriaceus*, and says:—"Reichenbach has given an excellent figure in the 'Icones,' t. 37, drawn from an authentic specimen, and well agreeing with one in the Museum herbarium, gathered by Nolte in 1821, at Schalisch, in Lauenberg. . . . . It is, I think, rightly referred to *lucens* in a wide sense, but is not quite *Zizii*; nor does it agree completely with the *lucens* with floating leaves from Kinghorn Loch, Fife, collected by Mr. Boswell (Syme). Some British botanists would certainly call it *heterophyllus*."

In July, 1885, I found *P. coriaceus* at Welches' Dam, near Chatteris, and, seeing it did not well agree with any local form of *P. Zizii*, I sent a specimen to Mr. Arthur Bennett, who subsequently published a short note on it in the 'Journal of Botany' for 1886. In this note Mr. Bennett agrees with me in considering *P. Zizii* to be its nearest ally. This was the first publication of the plant as a British species.

The species which have already been separated from the old Linnean *P. lucens* are so crowded with varieties that I think most workers at the genus will welcome an attempt to lessen the number by further specific segregation. *P. coriaceus* certainly does not come nearer to *P. Zizii* than that species does to *P. lucens*, so that in proposing its specific segregation I am merely following a generally-accepted precedent. We have here, as in *Zizii*, a form that in its typical state is recognisable at a glance, and to which Dr. Trimen's observations on that species may well apply:—"Probably the arrangement most in accordance with Nature, however, is that followed by Chamisso and Schlechtendal in their monograph of the genus published in 1827 ('Linnæa,' ii., p. 201), where *P. Zizii* is accorded equal rank with *P. lucens* and *P. heterophyllus*, all being regarded as sub-species of one super-species, *P. Proteus* C. & S." At present, however, I prefer to class all such forms as *species*, leaving the final settlement of their rank to the time when the whole genus shall be better known.

Probably *P. coriaceus* will be found widely spread over the British Isles, although I have seen no specimens that I can refer with certainty to it, besides those I gathered in 1885, and more abundantly in the present season.

# *HEPATICÆ* OF WICKLOW.

By David McArdle.

In the latter part of 1887 and in the present year I paid four visits to Altadore Glen, Co. Wicklow, in search of *Hepaticæ*. The distance from Bray is about nine miles; the route is through the most beautiful and picturesque part of the county. It is a pretty, wooded glen, divided by a stream on which are several cascades on the wet rocks; at one we gathered the rare *Dumortiera*, which grows luxuriantly, and on the trunks of decayed trees and on moist stones *Lejeunea flava* Swartz is plentiful. The occurrence of these two plants, which have such an interesting geographical distribution, is a true indication of the genial moist atmosphere they enjoy, similar to that in which they are found in South America and in Java, and which makes many parts of Ireland so rich in this interesting family of plants.

The appended list is provisional only, and is by no means intended as complete. The principal object in writing it is with the hope that some person interested in Liverworts and other Cryptogams may be induced to visit that interesting part of the Co. Wicklow. * indicates an addition to the Flora of the district.

*Marchantia polymorpha* L.; Eng. Bot. t. 100.
*Dumortiera irrigua* Nees.
*Lunularia cruciata* L., Dumort.
*Frullania Hutchinsiæ* Hook.; Hook. Brit. Jung. t. 1; Eng. Bot. t. 2480.
*F. dilatata* L.; Dumort.; Hook. Brit. Jung. t. 8.
*Lejeunea serpyllifolia* (Mich., Dicks.), Libert.
**L. patens* Lindberg; Moore, Irish Hepat. pl. 48.
*L. serpyllifolia* var. *ovata* Nees.
,, var. *translucida* Spruce MSS.
**L. flava* Swartz.
*L. Moorei* Lindberg; Moore, Irish Hepat. pl. 44.
*Radula complanata* L., Dumort.; Hook. Brit. Jung. t. 81.
*Cephalozia bicuspidata* L., Hook. Brit. Jung. t. 11.
**C. curvifolia* Dicks., Dumort.; Hook. Brit. Jung. t. 16.
**C. connivens* Dicks., Hook. Brit. Jung. t. 15.
*Lophocolea bidentata* L., Dumort.; Hook. Brit. Jung. t. 80.

**L. heterophylla* Schrad.; Hook. Brit. Jung. t. 31. Although I have followed many good authorities in placing this in the rank of a species, we find it approximates so closely to the foregoing that it is difficult sometimes to separate one from the other. It is uncommon in Ireland; reported from the south and west. I have not gathered it before.

*L. spicata* Taylor; Cooke, Brit. Hepat. p. 15, pl. 113. One of the most beautiful of the genus, and a scarce plant in Britain. It was collected in the same glen by the late Dr. Moore in 1873. I found it in patches on the trunks of trees which have fallen and decayed, not mixed with any other species of liverwort, as it is generally found in other localities.

*Kantia Trichomanis* Dicks.; Hook. Brit. Jung. t. 79.
*Plagiochila asplenoides* L., Dumort.; Hook. Brit. Jung. t. 13.
*P. spinulosa* Dicks., Hook. Brit. Jung. t. 14.
**Blasia pusilla* L.; Jung. Blasia; Hook. Brit. Jung. t. 82–84.
*Pellia epiphylla* Dill., Raddi; Hook. Brit. Jung. t. 47.
*Metzgeria furcata* L., Dumort.; Hook. Brit. Jung. t. 55–56.
**M. conjugata* Dill., Lindb. Monogr. No. 7; Bisch. Handb. Bot. Term. t. 56, fig. 275 c; Dill. Hist. Musc. t. 74, fig. 45.
*Riccardia multifida* Dill., L.; Hook. Brit. Jung. t. 45.

## NOTES ON THE FLORA OF SOUTH HANTS.

By the Rev. W. Moyle Rogers, F.L.S.

The part of Hants to which these notes refer is the south-west corner, extending from Bournemouth to Lyndhurst, and comprising Districts I. to III. of Mr. Townsend's 'Flora of Hampshire.' The localities given are of course, as a rule, additional to those found in that work, and in most cases are of interest only as first records for one or other of the districts named, so filling some of the minor gaps in the Flora. These first records for the *districts* are marked by an asterisk attached to the numerals I., II., or III. immediately before the localities. General remarks as to frequency refer only to this south-west corner of Hants.

The observations date from September, 1885, to the present time, and I am myself responsible for most of the localities given, Mr. T. R. Archer Briggs having supplied the rest while staying with me at Bournemouth. I am much indebted to him (as so often before) for ready help in determining the Rubi, on some of which I have also had the benefit of Prof. Babington's and Dr. Focke's opinions.

*Ranunculus Lenormandi* F. Schultz. I. Ditches, Sopley Common, abundant; some of it very like *R. intermedius* Knaf.—*R. auricomus* L. I.* Bournemouth West, under bushes in a garden-border. Denizen?

*Papaver dubium* L. I. About Bournemouth, in several places.

*Fumaria confusa* Jord. II.* Mudeford.

*Barbarea præcox* R. Br. I.* About Bournemouth. III. (1) Sway. Milton.

*Cardamine hirsuta* L. I.* Bournemouth. II.* Christchurch, &c. —*C. flexuosa* With. I.* Bournemouth.

*Camelina sativa* Crantz. I. By railroad, Bournemouth West. Casual, 1888.

*Brassica Rapa* L., c. *Briggsii* H. C. Wats. I*. Cultivated and waste ground between Wick and Hengistbury Head; abundant. —*B. alba* Boiss. I. Wick. II. Newtown.

*Senebiera didyma* Pers. I.* Bournemouth; garden-weed.

*Thlaspi arvense* L. I. Bourne Valley. III. (1) Sway.

*Teesdalia nudicaulis* R. Br. I. Turbary Common.

*Viola Reichenbachiana* Bor. I.* Bournemouth West.—*V. lactea*

Sm. I.* Heaths and commons all round Bournemouth, in great quantity; a few of the plants just like those which I received from Watson as his var. *intermedia*. II.* Border of Chewton Common. III. (1) Border of Forest, near Lyndhurst Road.

*Polygala oxyptera* Reichb. I.* By the sea at Boscombe and Southbourne. III. (1)* Near Lyndhurst Road.

*Silene Cucubalus* Wibe., b. *puberula* Syme. I.* West Cliff, Bournemouth. Sopley Common.

*Cerastium semidecandrum* L. I. West Cliff, Bournemouth. — *C. arvense* L. I. By the Bourne. On the heath near Bournemouth Cemetery.

*Sagina ciliata* Fr. Very common. — *S. subulata* Presl. III. (1) Milton.—*S. nodosa* E. Mey. I.* Sopley Common. III. (1) Marshy meadow, Sway.

*Hypericum dubium* Leers. III. (1) Near Sway; apparently rare.

*Ononis repens* L. I. Near Hengistbury. III. (1)* Milton.

*Trigonella purpurascens* Lam. I. West Cliff Moor, Bournemouth. II. Chewton Common.

*Trifolium glomeratum* L. II. Chewton Common.—*T. hybridum* L. I.* About Bournemouth. Pokesdown. III. (I) Milton. Sway. Plainly increasing.

*Lotus hispidus* Desf. II. Christchurch, near railway-station; abundant, 1888.

*Vicia tetrasperma* Mœnch. II.* Hinton. III. (1) Sway. Milton. —*V. sepium* L. I.* Wick.

*Rubus suberectus* Anders. II. Highcliffe. — *R. fissus* Lindl. and *R. nitidus* W. & N.† III. (1)* Brockenhurst.—Var. *hamulosus* P. J. Müll.† III. (1)* Lyndhurst Road; locally abundant.—"*R. divaricatus* P. J. Muell., a form of the *nitidus* group." Thus Dr. Focke names a beautiful plant that I found last summer between Hinton and Highcliffe in Dist. II.* — *R. cordifolius* Genev. (non Focke).† I.* Wood east of Hern Station, in plenty; also one of the *nitidus* group, I should say.—*R. affinis* W. & N. Rare. I.* Bournemouth West Cliff, near Middle Chine, for a short distance.—*R. Lindleianus* Lees. Fairly frequent. Near Brockenhurst, III. (1),* I have also found what Mr. Briggs has pronounced "quite satisfactory" specimens of the Devon rhamnifolian referred to in his 'Flora of Plymouth' as allied to *Lindleianus*. This, in Dr. Focke's opinion, resembles very much the continental *R. bifrons* Vest., though he declines to give a positive determination. — *R. rhamnifolius* W. & N. and *R. rusticanus* Merc. Common.—*R. leucostachys* Sm. Fairly common. I. Pokesdown. II. Highcliffe. III. (1) Milton. Sway. Brockenhurst. Lyndhurst Road.—*R. calvatus* Blox. One of the commonest and best-marked Rubi throughout the district, and especially about Bournemouth, where it is exceptionally luxuriant, and has more hooked prickles than usual. II.* Hinton, &c.—*R. villicaulis* Kœhl. I.* Bournemouth, West Cliff. III. (1) Milton.—*R. Maassii* Focke? I. Bournemouth, West Cliff, in several places. III. (1) Sway. This is certainly the plant which we in England used to call *umbrosus*

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† Name given or confirmed by Prof. C. C. Babington.

Arrh.; but I do not know whether Dr. Focke would name it *Maassii*. It seems less common in Hants and Dorset than in Devon. — *R. macrophyllus* W. & N. Certainly uncommon. II. Hinton. Highcliffe. III. (1) Lyndhurst Road. — *R. mucronatus* Blox. Frequent throughout the district, though not given for the county in Mr. Townsend's 'Flora.' A beautiful plant, but almost without setæ. Name confirmed by Prof. Babington and Dr. Focke.—*R. Sprengelii* Weihe. III. (1) Lyndhurst Road.— *R. Bloxamii* Lees. Frequent. — *R. echinatus* Lindl. III. (1)* Between Brockenhurst and Lyndhurst, but not seen elsewhere.—*R. Radula* Weihe. Very common. —*R. Kœhleri* Weihe, b. *infestus* Bab. III. (1)* Sway. — *R. diversifolius* Lindl. Common. II.* Hinton. — *R. Balfourianus* Blox. III. (1)* Milton. Sway. — *R. corylifolius* Sm. Frequent; chiefly *sublustris*. II.* Hinton.—*R. cæsius* L. Apparently rare. I. Wick. There are a few other Rubi, which Mr. Briggs and I have found between Bournemouth and Lyndhurst, but, as they seem to require further study, I omit them here.

*Potentilla procumbens* Sibth. I.* Sopley Common. III. (I)* Milton. Sway.—*P. argentea* L. I. Grove Road, Bournemouth.

*Rosa spinosissima* L. II.* Hinton. — *R. tomentosa* Sm. III. (I) Milton. Brockenhurst. — Var. *sylvestris* Lindl. III. (1) Brockenhurst. — Var. *scabriuscula* Sm. III. (1) Milton. — *R. rubiginosa* L. II.* Hinton. Mudeford. III. (1) Cliffs, Barton. Forest, Lyndhurst Road.—*R. micrantha* Sm. Frequent in II. & III. (1), especially on the borders of the Forest. — *R. canina* L., *lutetiana* (Leman). II.* Hinton.—Vars. *dumalis* (Bechst.) and *obtusifolia* (Desv.). Common. — Var. *vinacea* Baker. I.* Sopley Common. III. (1) Lyndhurst Road. — Var. *urbica* (Leman). Seen in III. (1), but not abundantly.—Vars. *arvatica* Baker and *dumetorum* (Thuill). III. (1) Brockenhurst Common. — Vars. *tomentella* (Leman), *andegavensis* (Bast.), and *verticillacantha* (Merat), (the form *latebrosa* Déségl.). III. (1) Sway.—*R. systyla* Bast. I.* Pokesdown. Sopley Common. II.* Hinton. Apparently general. — *R. leucochroa* Desv. III. (1) Near Lyndhurst Road, in one spot (with several of the white flowers open, July, 1887).

*Drosera intermedia* Hayne, b. *subcaulescens* Melvill. I.* Turbary Common. Sopley Common. May not this state of *intermedia* (it is surely no more) be the plant formerly reported from Hants as *D. anglica* (*vide* Fl. Hants, p. 46)?

*Callitriche obtusangula* Le Gall. I. Sopley Common, in plenty.

*Sison Amomum* L. I.* Near Hern Railway-station. Bournemouth, garden-bank, in one place.

*Pimpinella Saxifraga* L. II.* Hinton.

*Cornus sanguinea* L. I.* By Hern Railway-station.

*Valeriana sambucifolia* Mikan? III. (1)* Brockenhurst.

*Erigeron acre* L. III. (1) Moor between Sway and Milton.

*Matricaria Chamomilla* L. I.* Southbourne.

*Artemisia Absinthium* L. I.* Bourne Valley, in one place.

*Senecio erucifolius* L. II.* Highcliffe. III. (1) Sway and Milton, frequent.

*Onopordum Acanthium* L. I. By railroad near Hern Station, in considerable quantity, 1887.

*Silybum Marianum* Gærtn. I. Middle Chine, Bournemouth; covering a large piece of ground, 1886–88.

*Cichorium Intybus* L. I. Boscombe. Near Hern Station. II. Hinton.

*Hieracium vulgatum* Fr. II.* Hinton. III. (1) Milton. — *H. umbellatum* L. II. Highcliffe. — *H. boreale* Fr. I.* Southbourne. Alum Chine, in plenty (with *umbellatum*). III. (1) Milton. Sway.

*Tragopogon pratensis* L. I.* Bournemouth.

*Centunculus minimus* L. II.* Chewton Common.

*Microcala filiformis* Link. II. Chewton Common. III. (1) Milton.

*Blackstonia perfoliata* Huds. and *Erythræa pulchella* Fr. III. (1) Moor near Sway.

*Gentiana Pneumonanthe* L. I. West Cliff, Bournemouth; still abundant.—*G. Amarella* L. II.* Chewton Common.

*Menyanthes trifoliata* L. I. West Cliff, Bournemouth.

*Lithospermum arvense* L. I.* Bournemouth, in nursery garden, and by West Station.

*Echium vulgare* L. I.* Near Hern Station.

*Solanum nigrum* L. I. Wick, in plenty. By Hern Station. Bournemouth. II. Mudeford.

*Linaria Elatine* Mill. II. Highcliffe. III. (1) Milton. Sway. Lyndhurst.

*Bartsia viscosa* L. II. Boggy meadow, Highcliffe.

*Thymus Chamædrys* Fr. II. Chewton Common. III. (1) Ashley Common. Sway.

*Calamintha officinalis* Mœnch. Seen only near Sway, III. (1).

*Chenopodium murale* L. I.* Wick, near farm, one plant, 1886.—*C. Bonus-Henricus* L. I.* Bournemouth, edge of moor behind Branksome Wood Road, a considerable clump of plants.

*Atriplex littoralis* L. I.* Near Hengistbury. — Var. *marina* L. II. Mudeford. — *A. hastata* L. III. (1) Sway. — *A. deltoidea* Bab. II. Highcliffe.

*Polygonum dumetorum* L. I.* Border of Jumpers' Common, in fair quantity, 1888. — *P. maritimum* L. II. Mudeford, one plant seen in 1888.—*P. amphibium* L., b. *terrestre* Leers. III. (1)* Lyndhurst Road.

*Rumex acutus* L. I.* About Bournemouth, and in Alum Chine especially, frequent. Near Hengistbury. III. (1) Milton.

*Mercurialis annua* L. II.* Mudeford.

*Betula alba* L. I.* Jumpers' Common. II.* Hinton.—*B. glutinosa* Fr. II.* Hinton. III. (1) Milton.

*Salix fragilis* L., *S. triandra* L., *S. pnrpurea* L., *S. viminalis* L., and *S. ferruginea* G. Anders. I.* Wick.—*S. cinerea* L. and *S. aurita* L. I.* Alum Chine.

*Ruppia rostellata* Koch. I.* By the Harbour between Wick and Hengistbury Head; in fruit, Sept. 1886.

*Zostera marina* L., b. *angustifolia* Fr. I.* Bournemouth Beach, with the type.

*Carex pallescens* L. III. (1) Forest north of Brockenhurst, in plenty. — *C. pseudo-Cyperus* L. I.* Sopley Common, near Hern Station.

*Alopecurus agrestis* L. I.* Bourne Valley. III. (1) Milton. Sway.—*A. pratensis* L. III. (1) Sway.

*Agrostis nigra* With. III. (1)* Railway-banks near Sway; abundant, 1888.

*Deschampsia flexuosa* Trin. I. Jumpers' Common. Sopley Common.

*Avena strigosa* Schreb. I.* Wick.—*A. fatua* L. I.* East Cliff, Bournemouth. III. (1) Sway.

*Glyceria plicata* Fr. III. (1) Milton.

*Festuca pratensis* Huds. I.* By River Stour, at Throop.

*Bromus giganteus* L. III. (1)* Sway.

*Lolium italicum* Braun. I.* Bournemouth. II. Hinton.

*Elymus arenarius* L. I.* Cliffs between Boscombe and Bournemouth.

*Lastræa spinulosa* Presl. I. Wood near Hern Station; in plenty, with *L. dilatata*.

Of the plants referred to in this paper, the following are not given for S. Hants either in the 'Flora of Hampshire' or in 'Topographical Botany':—*Brassica Briggsii*, *Polygala oxyptera*, *Rosa vinacea*, *R. arvatica*, *R. obtusifolia*, *R. leucochroa*, *Rubus fissus*, *R. nitidus* and var. *hamulosus*, *R. divaricatus*, *R. cordifolius* (Genev.), *R. mucronatus*, *Agrostis nigra*, and *Elymus arenarius* (*vide* Journ. Bot. 1886, p. 284, where "South Wilts" is a misprint for "South Hants").

I add the following "garden outcasts," more or less established on different parts of the West Cliff, Bournemouth:—*Alyssum maritimum*, *Oxalis stricta*, *Sedum album*, *Linaria Cymbalaria*, *Myosotis sylvatica*, *Anchusa sempervirens*, *Polygonum Fagopyrum*, and *Asparagus officinalis*.

# BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.

By James Britten, F.L.S., and G. S. Boulger, F.L.S.

(Continued from p. 376).

**Gage, Sir Thomas** (1781–1820): b. 1781; d. Rome, 27th Dec. 1820; bur. in the Gesù, Rome. Bart. F.L.S., 1802. Of Hengrave Hall, Suffolk. Lichenologist. Contributed to Eng. Bot. (1671, 2541, 2575, 2580, &c.). Collected in Suffolk, Ireland, and Portugal. Smith Lett. ii. 235, 264; Ann. Bot. ii. 555; Trans. Hort. Soc. i. 328; Gillow, Dict. Catholic Biogr. iii.; Bot. Mag. 935. Portr. in Gage's Hist. Hengrave. *Gagea* Raddi = *Zygodon*. *Gagea* Salisb. *Verrucaria Gagei* Borr.

**Gainsborough, Henry, Earl of** [*See* Noel, Henry].

**Galpine, John** (d. 1806). Of Blandford, Dorset. A.L.S., 1798. 'Synoptical Compendium of British Botany,' 1806. Pritz. 116; Jacks. 233.

**Garden, Alexander** (1728–1791): b. Scotland, 1728; d. Cecil St., Strand, 15th April, 1791. M.D., Edinb., 1752. Practised nearly thirty years, from 1752, in Charlestown, S. Carolina. Pupil of Alston. Correspondent of Collinson, Ellis, and Linnæus. Memb. Roy. Soc. Upsala. F.R.S., 1773. R. S. C. ii. 767; Rees; Appleton, Cyclopæd. Amer. Biog. 594; Ramsay, Hist. S. Carolina, ii.; Linn. Letters, i. 282–605; Loudon, 'Arboretum,' 70. *Gardenia* Ellis.

**Gardiner, William** (c. 1809–1852): b. Dundee, c. 1809; d. Dundee, 10th or 21st June, 1852. A.L.S., 1849. Contributed to Loudon's Mag. Nat. Hist. 1832–1836, and to Trans. Bot. Soc. Edinb. 1839. Assoc. Bot. Soc. Edinb. 1838. 'Twenty Lessons on British Mosses,' 1846; 2nd series, 1849. 'Botanical Rambles in Braemar,' 1845. 'Flora of Forfar,' 1848. Published sets of Scottish plants. Pritz. 117; Jacks. 549; R. S. C. ii. 767; Gard. Chron. 1852, 406, 423; Cott. Gard. viii. 210; Proc. Linn. Soc. ii. 244. *Sphæria Gardineri* Berkeley.

**Gardner, George** (1812–1849): b. Glasgow, May, 1812; d. Neura Ellia, Ceylon, 10th March, 1849. M.D., Glasgow, 1835. F.L.S., 1842. Pupil of W. J. Hooker at Glasgow. 'Pocket Herbarium of Brit. Mosses,' 1836. Travelled in Brazil, 1836–1841. Superintendent, Bot. Gard., Peradenia, Ceylon, 1844. 'Organ Mountains,' Mag. Zool. Bot. 1838, 165. 'Travels in Brazil,' 1846. Brought 7000 spp. from Brazil. Brazil Herb. in Herb. Mus. Brit. Pritz. 117; Jacks. 549; R. S. C. ii. 768; Comp. Bot. Mag. ii. (1836), 1, 344; Gard. Chron. 1849, 263; 1851, 343; Cott. Gard. ii. 74; Journ. Bot. 1849, 154; 1851, 188; Proc. Linn. Soc. ii. 40. Brass tablet in Peradeniya Garden, Journ. Bot. 1884, 32. *Gardneria* Wall.

**Garet**, or **Garret, James** (fl. 1597). Of London. Apothecary. Tulip-grower. Correspondent of Clusius. Detected errors in Gerard. Pult. i. 115, 124; Lobel, 'Illustrationes,' 2, 3; Clusius, 'Libri Exoticorum.' Translated à Costa.

**Garnier, Thomas** (1776?–1873): b. Wickham, Hants, 1776; ? d. 29th June, 1873. Clerk. B.C.L., Oxon, 1800. F.L.S., 1798. Rector of Bishopstoke, 1807–1868. Dean of Winchester, 1840. Hants Plants, 'Hampshire Repository,' i. (1798); Eng. Bot. 1471; R. S. C. ii. 771; Journ. Bot. 1873, 256; Proc. Linn. Soc. 1873–4, 51.

**Garnons, William Lewes Pugh** (d. 1863): d. Ulting, Essex, 5th March, 1863. Clerk. F.L.S., 1825. B.A., Camb., 1814. M.A., 1817. B.D., 1824. Vicar of Ulting, 1848. Contributed to 'Flora of Essex.' 'Selection of Madeira Flowers,' 1845. Journ. Bot. 1863, 160.

**Gatty, Margaret,** *née* **Scott** (1809–1873): b. Burnham, Essex, 1809; d. Ecclesfield, York, 4th Oct. 1873; m. Rev. Alfred Gatty, D.D., 1839. Studied Algæ from 1848–9. Corresponded with Harvey from 1850. 'British Seaweeds,' 1863. Journ. Bot. 1873, 352.

**Gawler** [*See* KER, J. B.].

**Gerard, John** (1545–1612): b. Nantwich, Cheshire, 1545; d. London, February, 1612; bur. St. Andrew's Holborn. Barber-surgeon. Had garden between Ely Place and Field Lane, Holborn. Travelled in Denmark, Russia, &c., 'Herball,' p. 1223. 'Catalogus . . . . plantarum . . . in horto,' 1596; ed. 2, 1599; reprinted, 1876. 'Herball,' 1597; emended ed., 1633. Pult. i. 116–125; Rees; Pritz. 120; Jacks. 550; Life, by B. D. Jackson, 1876; Fl. Midd. 369; Loudon, 'Arboretum,' 37–40; Journ. Hort. xxviii. (1875), 145, with portr. Engr. portr. in 'Herball,' ed. 1, by W. R. (Rogers ?), and in ed. 2, by J. Payne. *Gerardia* Plumier.

**Gerrard, William Tyrer** (d. 1866): d. Foul Point, Madagascar, 1866. Of Natal. Plants at Dublin. Harvey, Gen. S. African Plants, 128; Journ. Bot. 1866, 367; Gard. Chron. 1866, 1042. *Gerrardanthus* Harv.

**Gibbs, George** (fl. 1634). Of Bath. Surgeon. Brought plants from Virginia, and cultivated 117 exotics. Johnson, 'Mercurius Botanicus,' 1634.

**Gibson, Alexander** (1800–1867): b. Lawrencekirk, Kincardinesh., 24th Oct. 1800; d. Bombay, 16th Jan. 1867. M.D., Edinb. F.L.S., 1853. Conservator of Forests, Bombay. 'Bombay Flora' (with Dalzell), 1861. Pritz. 121; Jacks. 550; Proc. Linn. Soc. 1866–7, xxxiii.; R. S. C. ii. 873.

**Gibson, George Stacey** (1818–1883): b. Saffron Walden, Essex, 20th July, 1818; d. Bishopsgate St., 5th April, 1883; bur. Friends' Burial-ground, Saffron Walden. Banker. F.L.S., 1847. Contributed to 'Phytologist.' Correspondent of Watson. Discovered *Galium Vaillantii*, &c. 'Flora of Essex,' 1862. Pritz. 121; Jacks. 252; R. S. C. ii. 874; vii. 770; Top. Bot. 545; Journ. Bot. 1883, 161, with photo. portr.; Trans. Essex Field Club, iv., with engr. portr.; Friends' Books, i. 838; Proc. Linn. Soc. 1882–3, 41.

**Gibson, Jabez** (d. 1838): d. Saffron Walden, 1838. Uncle to the preceding. Banker. Founder of the Saffron Walden Museum. Lexden plants, Loudon, Mag. Nat. Hist. 1834, 17.

**Gibson, Samuel** (1790 ?–1849): b. 1790 ?; d. Hebden Bridge, Yorkshire, 21st May, 1849. Whitesmith, of Hebden Bridge. Contributed to 'Phytologist,' Newman's 'Ferns,' &c. Herbarium bought by Mark Philips, M.P. Some collections at Peel Park Museum, Sheffield. Cash, 157; R. S. C. ii. 874. *Carex Gibsoni* Bab.

**Gilbert, Davies,** *née* **Giddy** (1767–1839): b. St. Erth, Cornwall, 6th March, 1767; d. Oxford, 24th Dec. 1839. M.A., Oxon, 1789. D.C.L., 1832. LL.D., Camb., 1832. F.R.S., 1791; President, 1827–1831. F.L.S., 1792. M.P. for Helston, 1804–1832. m. Mary Ann Gilbert, 1806, and took name of Gilbert, 1817. Assisted Withering in 'Arr. of Brit. Pl.,' ed. 3.

**Gilby, William Hall** (fl. 1814–1821). 'Respiration of Plants,' Edin. Phil. Journ. iv. 100 (1821). Pritz. 121; R. S. C. ii. 884.

**Gilchrist, James** (1813–1886): b. Collin, Dumfriesshire, 21st June, 1813; d. Dumfries, 1886. M.D., 1850. President Dumfries Field Club. 'Geological Relations of Alpine Plants,' Proc. Edin. Bot. Soc. 1855, 9. Trans. Bot. Soc. Edin. xvii. 2; R. S. C. ii. 884.

**Gillies, John** (fl. 1830). M.D. Resided at Mendoza. Collected in Chili. MS. 'Flora Orcadensis' [with Alexander Duguid], 1832. Watson, 'Top. Bot.' 545; R. S. C. ii. 889; Miers, Trav. Chili, i. 226; Lasègue, 486; Bot. Misc. iii. 130. Plants at Kew and Brit. Mus. *Gilliesii* Lindl.

**Gilpin, William** (1724–1804): b. Scaleby Castle, Carlisle, 4th June, 1724; d. Vicar's Hill, Boldre, Hants, 5th April, 1804; bur. Boldre Churchyard. Clerk. B.A., Oxon, 1744. M.A., 1748. Vicar of Boldre, 1777. Prebend. of Salisbury. 'Forest Scenery,' 1791. Autobiog. Cumberl. & Westm. Antiq. Soc. 1879; Gent. Mag. 74 (1804), i. 388; Nich. Anecd. i. 639; ii. 253; viii. 643, 657; Nich. Illustr. i. 778. Portr. by H. Walton, engr. by G. Clinch.

**Giraud, Herbert** (fl. 1840). M.D. F. Bot. Soc. Edin. 'Vegetable Embryology,' Mag. Zool. Bot. v. (1840), 225; Trans. Linn. Soc. xix. 161; R. S. C. ii. 902. Went to India.

**Gisborne, Thomas** (d. 1846): d. Durham, 1846. Of Yoxhall Lodge, Staff. Clerk. Prebend. of Durham. F.L.S., 1799. Sent *Epimedium* to Smith. Eng. Bot. 438, 530, 616, 1557; Proc. Linn. Soc. i. 299.

**Gissing, Thomas W.** (1829–1870): b. Halesworth, Suffolk, 2nd Aug. 1829; d. Wakefield, 28th Dec. 1870; bur. Wakefield Cemetery. Druggist. 'Materials for Fl. of Wakefield,' 1867. Jacks. 261; R. S. C. ii. 907; vii. 783; Pharm. Journ. 1871, 556.

**Glasspoole, Hampden Gledstanes** (1825–1887): b. Ormesby St. Michael, Norfolk, 6th April, 1825; d. Hammersmith, 5th March, 1887; bur. Ormesby. Contributed to 'Science Gossip.' Found *Carex trinervis*. Journ. Bot. 1887, 382.

**Glen, Andrew** (1666?–1732): b. 1666?; d. Hathern, Leicester. 1st Sept. 1732; bur. Hathern. Clerk. B.A., Camb., 1683. M.A., 1687. Rector of Hathern, 1694. Friend of Ray. Travelled in Sweden and Italy. Formed a herbarium (1685–1692) of 700 native and 400 exotic spp. (200 Italian). Pult. ii. 63; Nich. Anecd. viii. 196; Nichols, 'History of Leicestershire,' iii. 846.

**Glyn, Thomas** (fl. 1633). Found *Diotis maritima* in Wales. Pult. i. 136; Johnson, 'Ger. Em.'

**Goddard, Jonathan** (1617?–1675): b. Greenwich, 1617; d. London, 24th March, 1675; bur. in chancel, Great St. Helen's, Bishopsgate. M.B., Camb. 1638. M.D., 1643. F.R.C.P., 1646. Warden of Merton College, Oxon, 1651. Prof. of Physic, Gresham College, 1655. 'Observations concerning . . . a Tree,' 1664. 'Fruit-trees' Secrets,' 1664. Munk, i. 240.

**Goldie, John** (1793–1886): b. Maybole, Ayrsh., 21st March, 1793; d. Ayr, Waterloo Co., U.S.A., June, 1886. Gardener and collector. Discovered *Rumex aquaticus*. Eng. Bot. 2698; R. S. C. ii. 929; Journ. Bot. 1888, 299. *Aspidium Goldianum* Hook.

**Good, John Mason** (fl. 1808–1825). 'Structure and Physiology of Plants,' 1808. Jacks. 67.

**Good, Peter** (d. 1803): d. Sydney, June, 1803. Kew gardener. Sent in 1796 to Calcutta. Accompanied Brown on Flinders'

Voyage, 1801. Salisbury; Parad. Lond. t. 41; Gard. Chron. 1881, ii. 568; Hooker, Fl. Tasmania, cxiv. *Goodia* Salisb.

**Goodenough, Samuel** (1743–1827): b. Kingston, near Weyhill, Hants, 29th April, 1743; d. Worthing, 12th Aug. 1827; bur. N. cloister, Westminster Abbey. Clerk. Student, Christ Church, Oxon, 1760. M.A., 1767. D.C.L., 1772. Treas. L.S., 1788. F.R.S. Kept school at Ealing, 1722. Canon of Windsor, 1798. Dean of Rochester, 1802. Bishop of Carlisle, 1808. 'British Fuci' [with Woodward], 1795. 'Brit. Carices,' Trans. Linn. Soc. ii. 126. Assisted Withering in 'Arr. Brit. Pl.' ed. 3. Eng. Bot. 2206, &c.; R. S. C. ii. 934; Nich. Illustr. vi. 245. Bust at Linn. Soc. *Goodenovia* Sm.

**Goodsir, John** (1814–1867): b. Anstruther, N.B., 1814; d. South Cottage, Wardie, Edinburgh, 6th March, 1867; bur. Dean Cemetery. M.D., Edin. F.R.S., 1846. F.B.S.E., 1841. Prof. Anatomy, Edin., 1846. 'A fluid containing . . . . Sarcina ventriculi'; 'Conferva . . . . on Gold-fish,' Ann. & Mag. ix. 1842. Trans. Bot. Soc. Edin. ix. 118; R. S. C. ii. 936.

**Goodyer, John** (fl. 1597–1650). Of Mapledurham, Oxon. Pult. i. 135; Gerard, 'Herball'; Johnson, 'Ger. em.' pref. 560; Parkinson; How. *Goodyera* Br.

**Gordier, John** (fl. 1640). Found *Geranium lucidum*. Parkinson; Pult. i. 153.

**Gordon** (fl. 1774–1779). Colonel. Travelled in Africa, 1774–1777. Discovered and drew many *Stapeliæ*. Masson, 'Stapelia,' pref. viii.; Journ. Bot. 1884, 145. *Stapelia Gordoni* Mass.

**Gordon, Alexander** (fl. 1793). 'Reader on Botany in London.' Son of James Gordon, of Mile End. Milne & Gordon, 'Indigenous Botany,' pref. vi. Jacks. 256.

**Gordon, Alexander** (fl. 1845). Gardener. Collected in Rocky Mountains. Journ. Bot. 1845, 492, 494.

**Gordon, George** (1806–1879): b. Lucan, Co. Dublin, 25th Feb. 1806; d. 11th Oct. 1879. A.L.S., 1841. At Chiswick from 1828. Assisted Loudon in 'Arboretum.' 'Pinetum,' 1858. Herbarium of Conifers at Kew. Pritz. 126; Jacks. 140; R. S. C. ii. 945 (nos. 3–6); Gard. Chron. 1879, ii. 569.

**Gordon, George** (fl. 1839). Of Birnie, near Elgin. Clerk. LL.D. 'Collectanea for a Flora of Moray,' 1839. MS. Flora of Moray in Bot. Dept., Mus. Brit. Discovered *Pinguicula alpina* in 1831. Eng. Bot. 2621, 2747; Pritz. 126; Jacks. 257; Top. Bot. 546.

**Gordon, James** (fl. 1756). M.D., Aberdeen. Taught Alexander Garden. Linn. Letters, i. 378.

**Gordon, James** (d. 1780). Nurseryman, of Mile End, 1750–1776. Worked for Lord Petre and Dr. Sherard. Correspondent of Linnæus. Introduced *Ulmus americana* (1752), *Sophora japonica* (1753), and *Ginkgo* (1754). Pult. ii. 241; Linn. Letters, i. 93, 254; Rich. Corr. 390; Loudon, 'Arboretum,' 78, 82; Phil. Trans. xl. 520. *Gordonia* Ellis.

**Gordon, William** (fl. 1832). Surgeon. Of Welton, near Hull. F.L.S., 1832. 'Analogy between . . . . vegetables and animals,' Loudon, Mag. Nat. Hist. iv. 1831–2. R. S. C. ii. 945.

**Gorrie, Archibald** (fl. 1800–1839). Of Perth. Assoc. Bot. Soc. Edin., 1839. Father of two following. R. S. C. ii. 948.

**Gorrie, David** (fl. 1830–1854). 'Hereditary properties of cult. plants,' Journ. Agric. viii. 314. 'Illustrations of Scripture from bot. science,' 1854. Assisted Loudon in 'Manual of Cottage Gardening,' 1830. Pritz. 126; R. S. C. vii. 802; Trans. Bot. Soc. Edin. xiv. 298.

**Gorrie, William** (1812?–1881). Gardener. Contributed to Mag. Nat. Hist. 1828. Described Grasses in Morton's Cyclop. Agriculture. R. S. C. ii. 948; Trans. Bot. Soc. Edin. xiv. 298.

**Gosse, Philip Henry** (1810–1888): b. Worcester, 6th April, 1810; d. St. Marychurch, Torquay, 23rd Aug. 1888. A.L.S., 1849. F.R.S., 1856. In Canada, &c., 1827–44; in Jamaica, 1844. 'Canadian Naturalist,' 1840. 'Nat. Sojourn in Jamaica,' 1846. Wanderings through Kew Conservatories,' 1856. Jacks. 412; 'Athenæum,' 1st Sept. 1888; R. S. C. ii. 952.

**Gotobed, Richard** (fl. 1805). Of Eton. F.L.S., 1800. Contrib. Berks and Bucks Lists to Bot. Guide. Eng. Bot. 738, 1295, 1501.

**Gough, Hon. George Stephens** (fl. 1820–1852). Of Rathronan House, near Clonmel. F.L.S., 1840. Explored Neilgherry flora. Wight, Icon. v. ii. 22. *Goughia* Wight.

**Gough, John** (1757–1825): b. Kendal, 17th Jan. 1757; d. Fowl Ing, Kendal, 28th July, 1825; bur. Kendal Parish Churchyard. Mathematician, &c. Blind from three years old. Correspondent of Withering. Contributed to Manchester Philosophical Soc., 'On the Germination of Seeds'; to Nicholson's Phil. Mag., 'On Nutrition in Plants,' &c. Taught Dalton and Whewell. Eng. Bot. 489; R. S. C. ii. 959; Nicholson, 'Annals of Kendal,' ed. 2, 1861, 355–368.

(To be continued.)

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## SHORT NOTES.

Scilla autumnalis on St. Vincent's Rocks.—It is gratifying to be able to announce that the hope expressed in the 'Flora' [of the Bristol Coalfields] (p. 201), that this rare bulb might yet be rediscovered on St. Vincent's Rocks, has been justified. We are indebted for this pleasure to Mr. J. C. House, who, during a scramble in autumn, came upon a patch of about a hundred plants. It was somewhat perplexing, however, to find that the spot was *made* ground, the site of ancient quarrying; but this circumstance has been explained and accounted for in a very interesting and satisfactory manner. Mrs. Glennie Smith has kindly furnished information on the matter that was conveyed to her by Mrs. Glennie, widow of Mr. William Glennie, who was engineer, under Brunel, of many great works in the West of England. The account runs as follows:—When Brunel was about to commence the construction of the Suspension Bridge, Mrs. Glennie told him that he was going to destroy the Clifton locality of *Scilla autumnalis*, as it grew just where the approach on the Gloucestershire side was to be made. The engineer immediately informed himself carefully of the exact spot, and, before the ground was broken, he made some of his workmen dig up the turfs containing the bulbs, and transplant them safely beyond the reach and influence of the works he was about to begin. Mrs. Glennie could not remember if she ever knew the place to which the transference was made, but it seems tolerably clear that Mr. Brunel's care was effectual in preserving for us a choice plant, the locality for which, when undisturbed, was evidently of very small dimensions.—J. W. White (in Proc. Bristol Nat. Soc. v. iii. 232).

Distribution of Caloglossa Leprieurii (Mont.) J. Ag.—This species, previously unknown to occur on the shores of the African Continent, has been found on the trunks of old trees at low water at Akassa, River Nun (chief mouth of the Niger), W. Africa. In his 'Species Algarum,' vol. iii., p. 499, J. Agardh gives as the distribution of the species:—"M. Atlantico calidiore ad Americam utramque; ad Novam Hollandiam et N. Zealandiam." The specimens in Kew Herbarium, however, show it to have a more extended range. The localities there represented are:--Atlantic shores of N. and S. America, from Fort Lee, near New York, to Cayenne; Bermuda; Akassa, W. Africa; Mauritius; Kelani River, Ceylon; Bonin Islands, N. Pacific; Port Fairy, Victoria; Port Curtis, Queensland; Georgetown, Tasmania; Bay of Islands, New Zealand. It has also been found in Guadeloupe. β. *subtilissima* (Martens), Calcutta.--C. H. Wright.

Crepis taraxacifolia in Middlesex. — Although not included in the 'Flora of Middlesex,' *Crepis taraxacifolia* has evidently been long established in the Thames and Colne valleys, for, in addition to the stations already given, I have again met with it this summer at Uxbridge and in the neighbourhood of Harefield. I found it a common weed in meadows and on railway-banks between West Drayton and Staines, and in great profusion between Staines and Laleham, some of the meadows about Laleham and Penton Hook Lock apparently producing very little else. Nearly opposite the Lock, *Campanula glomerata* was abundant and luxuriant, in one place overtopping the grass, and quite tinting the meadow with its handsome blue flowers. Both species have doubtless been introduced by seeds brought down from the upper reaches of the river. Amongst plants collected this year, I find *Poterium muricatum* from railway-banks between Uxbridge and West Drayton—not hitherto noticed in the county, I believe.—J. Benbow.

Autumnal Flowering of Mercurialis perennis.—During the month of September, about five years ago, whilst walking along a footpath skirting a wooded hill in the neighbourhood of Preston, and occasionally scanning the flora of the hedge-bottom, my attention was attracted by the unusual sight of *Mercurialis perennis* in full flower. Finding the plant again in flower in September, 1884, I gathered specimens, and sent them, while fresh, to Kew. In acknowledging the receipt of the plants, Sir J. D. Hooker stated that he could not find anything at all like it in the Kew Herbarium. Subsequently I sent specimens for cultivation, which, on making inquiry last May, I learned were still growing, and were then in flower. The following is a description of the plant, compiled from notes taken at the time it was discovered:—Rootstock short, stoloniferous; stem simple, 1 to 4 ft., decumbent, then ascending, sometimes rooting at the nodes, angular, very slightly hairy, leafy to the root; leaves 2 to 6 in., opposite, shortly petioled, oblong, ovate-lanceolate, crenate, serrate, ciliate, faintly pubescent on upper surface; stipules very minute. Flowers as in the ordinary *M. perennis;* time of flowering, September to about middle of December. From the above it will be seen that the plant differs from the ordinary spring flowering form in the decumbent habit of the stem, nodal rooting, size of leaves, but chiefly in its time of flowering, which can hardly be otherwise described than as permanently autumnal; and, from this feature, I suggested to Sir J. D. Hooker that it be called *M. perennis* (forma *autumnalis*), a suggestion in which he acquiesced. On visiting the habitat on Saturday, Sept. 29th ult., I found the plant just breaking into flower, and displaying all the features and characteristics that distinguished it when first seen: this is the fifth autumnal flowering of the plant that I have been able to observe. Its distribution seems to be very local, for the most persistent search has hitherto failed to discover it elsewhere than in its Preston habitat; whilst reports which have reached me from the most eminent botanists in England, prove the phenomenon to be altogether unique.—F. J. GEORGE.

NEW BANFFSHIRE RECORDS.—On 29th July I found, between two and three miles nearly due north from Loch Bulg, in the ravine of the stream which, flowing out of the loch, is marked on the Ordnance Map the "Bulg Burn," three ferns, *Asplenium viride*, *Polystichum aculeatum*, and *Lastrea Oreopteris*, all of which, according to 'Topographical Botany,' ed. 2, have not been recorded for County 94. In the same ravine there were plenty of *Asplenium Trichomanes*, *Athyrium Filix-fœmina*, *Cystopteris dentata*, *Polystichum Lonchitis*, *Phegopteris Dryopteris*, and *P. polypodioides*. These have all been previously recorded.—HERBERT D. GELDART.

ROSA STYLOSA var. PSEUDO-RUSTICANA Crép. — In Mr. Preston's short note in this Journal for Dec. 1888, p. 377, he reports this rose on my authority as found by my son, F. A. Rogers, last summer, near Hagler's Hole, South Wilts. He adds:—"*R. pseudo-rusticana* is apparently an addition to the British Flora; it was so named by M. Crépin, to whom Mr. Rogers sent specimens." This statement calls for some explanation from me. M. Crépin has not seen the Hagler's Hole rose, but last March he suggested the name *pseudo-rusticana* for other specimens which I sent him from Devon and Dorset, and which, I am satisfied, are identical with this Hagler's Hole plant. It is, in fact, a well-marked rose which I have known since 1877, when I discovered it, in considerable quantity, in the Teign Valley, Devon. I then labelled it "*R. stylosa*, var. with white flowers and glabrous leaves." Mr. J. G. Baker having afterwards named it *R. virginea* Rip., I sent it under that name to the Botanical Exchange Club in 1885. This called forth from Mr. James Groves, the distributor for that year, the note, "This will not do for *R. virginea*, which has glabrous peduncles." M. Crépin has now confirmed this view. He says further that he has no rose in his herbarium identical with this; and, suggesting for it as a new variety the name *pseudo-rusticana*, he points out that it differs from *rusticana* in the following particulars:—Its corolla pure white, instead of pink (*blanc-carné*), its style-column longer and slenderer, and its leaflets longer, more acuminate, and with broader teeth. It may be thus described:—

*Rosa pseudo-rusticana* Crép. — Bush strong, with very elongate arcuate-prostrate branches. Prickles few (quite wanting on some stems), *systyla*-like, but longer-pointed. Leaflets usually quite glabrous, though occasionally having a few hairs along the midrib beneath, pale green, very unequal, strongly acuminate, and with unequal (often *very* unequal) strongly acuminate simple serrations; often tinged with red. Petioles usually rather hairy, with a few small prickles and setæ. Stipules and bracts remarkably acuminate, fringed irregularly with hairs and setæ, but otherwise glabrous, often tinged with red. Corolla cup-shaped, pure white. Sepals as strongly pinnate as in *systyla*. Style-column on very prominent disk, and so made about level with the stamens, though actually shorter. Peduncles always well clothed with unequal setæ, usually shorter than in *systyla*, though longer than in average *canina* forms. —This easily-recognised rose is frequent on hedges on the western slope of Haldon, Teign Valley, S. Devon, where I showed it to Mr. Briggs, who afterwards sent it to me from Doddiscombsleigh (a little farther north), and from Torquay. In 1884, I also found it at Leigh and Bailey Ridge, Dorset, where I saw it again last summer. My son and I then found it also at Beer Hackett (north of Leigh), and immediately after at Hagler's Hole, S. Wilts. I know no other localities.—W. Moyle Rogers.

Arum italicum Mill.—I should like to add my testimony to that of Mr. T. R. Archer Briggs, in his very interesting remarks in this Journal, 1888, p. 378, with reference to this plant. I have had the plant (the roots originally brought from Steephill) in my garden for just twenty years. On the 31st May, 1869, I made the following note:—"Of the roots placed in my garden in June, 1868, the plant in the warmest and most open situation was the earliest in flower. The spathe is now fully open. The spathe in the other plants, which are more in the shade, are fully formed, but are not opened." On the 9th of June, "The spathe of a plant in the shade on the north side of a wall was fully opened this morning." I am sorry that I have no records in later years of the time of flowering in my garden, but I believe that the spathes are seldom fully expanded until the second week in June. At Steephill, there were spathes fully open on the 17th June, 1868; none on the 3rd May, 1870. In Jersey, in the last week in April, 1871, I believe there were no spathes showing—at least, I do not remember seeing any; and my herbarium specimens collected there at that time are leaves only. In the first record of the occurrence of the plant in Britain (Phyt. v. 194), Mr. Hambrough states that it "produces its flowers in June." With regard to the first appearance of the plant in autumn, Dr. Bromfield states, under his account of *Arum maculatum*, in the Isle of Wight, "I have even remarked them springing up at the close of autumn at Bonchurch" ('Flora Vectensis,' p. 527, footnote); and on the 28th Sept., 1874, I added the following note:—"This was, no doubt, *A. italicum*, which has been showing in my garden for some days." In 1872, the earliest date noted was 29th Sept., 1872; in 1871, the 4th Oct. The bright red fruit of *A. italicum* often remains a conspicuous object in my garden far into the winter, and contrasts well with the dark green leaves. *Arum maculatum* does grow at Steephill, but I have never seen any plants which at all suggested the idea of their being hybrids between *A. maculatum* and *A. italicum*. In Mr. Hambrough's account in the 'Phytologist,' to which I have referred, there is a curious misprint in his description of the fruit, the word "buds" being twice given instead of "seeds."—FREDERIC STRATTON.

POTAMOGETON PERFOLIATUS L., var. RICHARDSONII. — When lately contrasting the North American forms of this species with the European, I found that Dr. Robbins' "var. *lanceolatus*," Gray's 'Manual N. U. States,' 1868, is pre-occupied by the "var. *lanceolatus*," of Blytt, in Norge's 'Flora,' 1861. I propose to name Dr. Robbins' plant "var. *Richardsonii*," after the Arctic explorer, Dr. Richardson, who seems to have been the first to point out the difference from the European forms in the 'Appendix' (Botany) to Franklin's Expedition.' Gay, in his herbarium at Kew, names specimens as "var. *lanceolatus*," but I cannot find that he published the name; if so, it would antedate both Blytt's and Robbins', dating as it does from 1813. In 1887, Le Grand published a "var. *lanceolatus*," in Pl. Nouv. Dep. Cher. Bourges. p. 17; but this name, of course, is inadmissible, and I have not seen specimens. In 1881, I referred specimens gathered by Mr. Brotherston, in Scotland, to Robbins' var.; but since that time I have seen a very fine series of the American plant, and it certainly is not it, but comes near to Blytt's, along with which specimens from W. Sutherland (Mr. F. Miller) may be placed. Of Gay's plant I have seen specimens from Prussia (E. Straker); Saxony (Prof. Willkomm); and Landsberg, Bavaria (Herb. Shuttleworth ex herb. Mus. Brit.).—ARTHUR BENNETT.

## NOTICES OF BOOKS.

*Les Plantes Fossiles*. Par B. RENAULT. Paris, Baillière: 8vo, pp. 400; 53 cuts. Price 3 fr. 50 c.

*Origine Paléontologique des Arbres*. Par LE MARQUIS G. DE SAPORTA. Paris, Baillière: 8vo, pp. 360, 44 cuts. Price 3 fr. 50 c.

THESE two volumes are among the latest additions to the scientific library published by the enterprising firm of Baillière and Sons. The authors of the volumes are men who have distinguished themselves by their researches in fossil botany; Renault by his labours among the plant remains of the palæozoic rocks, and De Saporta among those of the secondary and more recent formations. In the little volumes before us, each deals with his own special subject, and produces a work of more importance than one would look for in a popular series of three-shilling volumes.

Although the title of Renault's volume is general, it really deals with some of the chief forms of plant-life found in Carboniferous rocks. Chapters are devoted to an enquiry into the conditions under which plants are preserved in the rocks, and the methods of preparing them for minute examination; and after expounding the various forms with which he deals, he enquires into the value of these plants in determining the nature of the climate when they lived, the age of the strata in which they are imbedded, and the light they throw on the theory of evolution.

Renault has done so much for these early plants, that it is impossible to read his work without adding to one's knowledge; and yet one is everywhere reminded how dangerous it is to be governed by historic views in any investigation. The interpretations of *Calamodendron* and *Sigillaria* by the illustrious Brongniart, singularly cautious and philosophic considering the materials at his disposal, have been completely modified by the abundant and varied material which has been examined in more recent years. Yet Renault adheres to the old views, and employs great ingenuity in defending them. In the Carboniferous Flora there are, as every one allows, representatives of three great divisions of the vascular cryptogams—the Horsetails, Club-mosses, and Ferns. The Horsetails are represented by large, jointed and branching plants with whorls of leaves and long slender corms. One set of stems increased by a secondary exogenous growth of scalariform tissue, and these Renault separates as Gymnosperms, though the fruits of the two groups present no differences that can be detected. The figures he gives of the fruits of his cryptogamic *Annularia* and his gymnospermous *Arthropitus* and *Calamodendron* might be transposed without injury. Of course he calls the contents of the one microspores and of the other pollen, but this is a necessity of his interpretation, and would not be accepted by any unbiassed student of the cones. The triple spores correspond, he believes, with the pollen-grains discovered in the pollen-chamber of several gymnospermous fruits, and so confirm the view he takes.

The same difficulty presents itself in his treatment of *Sigillaria*. The secondary growth in the stem is contrasted with the structure of an imperfect stem of *Lepidodendron*, and the latter genus is classed among the *Lycopodiaceæ*, while the former is reckoned a gymnosperm. The more perfect specimens of the stems of both genera show that histologically and structurally both stems agree, and the as yet rare indications of fruit in *Sigillaria* present the same kind of spores as are better known in *Lepidodendron*. No doubt the stems of these palæozoic *Equisetaceæ* and *Lycopodiaceæ* were more highly organized than the living representatives, in accordance with their arboreal habit and longer duration.

Renault's revision of the Carboniferous Ferns is less exhaustive, but is clear and instructive. More also might have been made of the remarkable series of gymnospermous fruits, the exposition of which was the last work of Brongniart. Though grouped into many genera, and including a considerable number of species, nothing is known of these save their beautifully preserved fruits.

The great additions to our knowledge of the later Secondary and the Tertiary Floras have enabled De Saporta to trace into these periods many of the generic forms which constitute our cultivated or useful trees. He adopts as a maxim, as if it could not be called in question, that priority of existence means genetic paternity. The great cause of the modification in the successive floras he finds in the variations of the temperature. The centre of the distribution of our plants has been the pole, and as the ice advanced or retreated, the vegetation had to accommodate itself to these varying conditions, and hence arose the forms preserved in the strata or now living on the globe. But in the view of Saporta there is much yet to be known; he hopes, however, that one day we shall be able to discover what is now unknown, and to withdraw the veil which still hides from us the secret of the *how* of Creation.

W. Carruthers.

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*Haandbog i Den Danske Flora.* Af. Joh. Lange. Kjoebenhaven, C. A. Reitzels Forlag. 1886–88.

This, the fourth edition of Dr. Lange's Flora, is a useful book for British botanists, although it is of course written in the Danish language. So many of our plants are to be found in Denmark, and Dr. Lange gives so large a number of varieties, with careful references to where the original descriptions may be found, with the synonymy (so far as relates to Danish literature), that it would be a useful work to compare our forms to see how far they agree or differ from those of Denmark, the flora of which country holds a sort of middle place between that of Scandinavia and those of Holland and Belgium.

Arctic species are almost absent; perhaps the nearest approach to such are *Bulliardia aquatica* DC., and the two Carices, *incurva* and *pauciflora*. Others of high latitudes are wanting, notably *Carex aquatilis* Wahl., though one might reasonably have expected it to occur; is it really absent? In Sweden it comes as far south as Småland, but is not recorded from Scania, the province next to Denmark. It discovery in Ireland (this year as far south as Kerry) and Wales would point to the possibility of it as a Danish species; this is especially the case as to Ireland; Wales may not be quite in the same category, as its mountains may have formerly produced the species, and its present habitat be only a remnant of a former more plentiful occurrence.

Dr. Lange gives a list of authors whose works are used or quoted; would this not be a useful addition to our Floras, of course from the local point? How useful to botanists far away from a public library is the full list of Hartmann's Scandinavian Flora! A list of local Danish botanists, one explanatory of terms used in the book, and a *resumé* of the Linnean and natural systems, are followed by the Flora proper, consisting of 857 pages, with 15 pages of corrections, additions, &c. A full index, with a separate one of Danish names, completes the book. Its arrangement is a strange one to British botanists, commencing with the *Equisetaceæ* and ending with the *Papilionaceæ*. Dr. Lange's estimate of the flora is 1415 species (with about 800 varieties).

Looking through the Flora in the sequence followed by the author, the following notes especially refer to our British Flora:—*Struthiopteris germanica* Willd., a fern that occurs in several stations in the range of the Flora, is not known as a British species. *Agropyrum strictum* and *obtusiusculum* are two grasses that ought to be sought on our coasts; the first is suggested elsewhere to be a hybrid between *junceum* (or *acutum*) and *Elymus arenarius*. *Brachypodium gracile* Beauv. is used instead of *B. sylvaticum* R. et S. A suggestive name is "*Lolium temulentum* L., var. *speciosum* Koch" (*L. arvense* With.). Most British botanists have been in the habit of quoting a plant as a variety under the name of the author, who used it *as a species* in a parenthesis; in this case, thus, "v. *arvense* (With.)," the advantage attending this is, it at once points out the plant intended, whereas he would be a bold botanist who could say he had searched out the earliest varietal name, and verified it as the same plant; *herein lies the difficulty*.

No reference is made to the suggested hybrid origin of *Psamma baltica*, and the Norfolk locality on our coasts would almost seem to deny the probability of such an origin, unless one of the supposed parents had died out. *Scirpus bifolius* Wallr. is separated from *S. rufus* Schrad. (*Blysmus rufus*) as a subspecies. Mr. Griffith has gathered this on the Welsh coast, but it seems hardly more than a variety; it is figured in 'Flora Danica,' t. 2703.

A note on the various opinions of the status of *Carex Boenninghauseniana* is interesting. A question of name is involved under *Carex stricta* Good., which name must certainly fall: the American *C. stricta* Lamarck (*fide* Mr. L. H. Bailey, U. S.), is a prior name to Goodenough's. Dr. Syme mentions this in 'English Botany,' but did not propose any name for it; the writer of our next Flora must do something with Goodenough's plant. I would suggest *Hudsonii* or *Smithii*, Porter's *C. Smithii* being *C. triceps* Michx. The mention of Mr. Bailey's name may prepare our botanists for some rather startling changes of *Carex* names, the result of his inspection of the original specimens of several authors in various European herbaria.

Dr. Lange identifies *Carex pilulifera* var. *Leesii* Ridley, with his var. *longibracteata*, 'Flora Danica.' t. 3050; this was indicated in the 'Scottish Naturalist' a year or so ago. Five forms are given of *Alisma Plantago*. *Juncus diffusus* has the synonym "*effuso-glaucus* Schnitzl." given for it. The absence of *Juncus acutus* and *Luzula Forsteri* marks the want in the Danish flora of some of our southern forms. The name of *Potamogeton coloratus* Horn. Fl. Danica, t. 1449 (1813), (erroneously given as 1823), must be adopted for the species we now call *P. plantagineus* Ducroz (1827); there is no question of the plants being the same, as Dr. Lange points out in his 'Nomencl. Flora Danica,' 1887. *P. rufescens* Schrad. is in the same category, but what name it must bear is not easy to decide.

*P. mucronatus* is quoted as of "Rœmer & Schultes Sys. Veg. 3, 517," but in their third Mantissa they say that *P. mucronatus* is thought by Mertens and Koch, in Röhlings Deutsch. Flora, to be only the *P. acuminatus* of Schumacher (*P. lucens* var. *acuminatus* of our Floras).

*Zannichellia marina* has four forms, two seemingly local ones, none, however, corresponding with our names. Under *Epipactis*, no mention is made of Babington's *ovalis*, but *E. atrorubens* Hoffm. is held to be the same as *E. media* Fries, Mant. 2, p. 54; and *E. microphylla*, formerly held to be Danish, is considered not to be the true plant. It is a pity these plants cannot be studied in combination under cultivation, as there seems no finality to the opinions on them. *Chenopodium botryoides* Sm. seems to be much commoner in Denmark than with us—is it the true plant?

Will some one take up the British Atriplices and collate them with the West European forms? I have seen nothing like *A. calotheca* Fries (a plant with several forms, fairly plentiful on the Danish coasts), from our British shores; we may well hope it may be found; but these plants are almost neglected, from the difficulty of naming them with any certainty; not that we are the only ones so situated—a well-known Swedish botanist writes me they are equally at a loss with their forms. The two *Valerians* (*sambucifolia* and *Mikanii*) are kept as separate species, the latter named "*V. officinalis* L.," a mode of naming which Mr. H. C. Watson so strongly protested against, when applied to a segregated species. Dr. Lange now puts his *Lappa* (*Arctium*) *intermedia* as a synonym of *Arctium nemorosa* Lejeune; surely we have two varieties? if so, Babington's plant may want a name.

In Hieracia, we find none of the Backhousian species; *H. integrifolium* Lange, Fl. Danica, t. 2661, is a remarkable plant; it may be described as a very large, entire-leaved form of *murorum*. *H. commutatum* Becker, Fl. Francofurt (1828), is given instead of *H. boreale* Fries. *Thalictrum* seems as difficult in Denmark as in Britain; we may hope before long to see some of our difficulties in this genus elucidated, so far as regards our forms. *Batrachium* is used for the Water-Ranunculi—*peltatus* being a species separate from *floribundus*. Here again I am afraid we shall have to face some name-changing. Dr. Lange does not accept *Viola persicæfolia* Schreb. as *V. stagnina* Kit. *Lepigonum* is used instead of *Spergularia*. "*L. salinum* Presl, Fl. Cech. p. 93, under *Spergularia*—*L. salinum* (and *L. lejospermum*) Kindberg, Monog. p. 23 and 36" is a long quotation to try and meet a difficulty. The account of the Epilobia (many hybrids) is very full. *Rosa canina* forms are grouped under *R. canina* L., *R. Reuteri* Godet, *R. dumetorum* Thuill, and *R. corilifolia* Fries. *R. neoburgensis* Lange is considered a form between the *Tomentosæ* and *Caninæ*, but placed with the former. The list of the Rubi naturally follows Friderichsen's and Gelert's 'Danmark's og Slesvig's Rubi' in the Botanisk Tidsskrift. Fifty-two species are given.

Altogether the book is a very interesting study, and a great advance on the last edition. Copies can be bought of the publisher (post-paid) at a considerably less price than in England.

ARTHUR BENNETT.

## Articles in Journals.

*Bot. Centralblatt* (Nos. 49–51).—J. G. O. Tepper, ‘Bemerkungen über die Kangaroo-Insel’ (*Cassytha Tepperiana* Ludw., sp. n.).—A. Y. Grevillius, ‘Ueber den Bau des Stammes bei einigen lokalen Formen von *Polygonum aviculare.*’ — (No. 50). R. von Wettstein, ‘Notiz betreffend die Verbreitung der Lärchenkrankheit.’ — (Nos. 51–52).—C. O. Harz, ‘Ueber Bergwerkspilze.’

*Bot. Gazette* (Nov.). — E. L. Gregory, ‘Development of cork-wings on certain trees’ (1 plate). — F. L. Scribner, ‘Notes on *Andropogon.*’ — J. Schenk, ‘On inflorescence of *Callitriche.*’ — J. Donnell Smith, *Hanburia parviflora*, *Calea trichotoma*, spp. nn.; plates of *Vochysia guatemalensis* and *Pitcairnia Turckheimii.*—F. W. Anderson, *Œnothera albicaulis.*—A. A. Crozier, ‘Diœcism in *Andropogon provincialis.*’

*Botaniska Notiser* (Häft. 6). — C. A. E. Lénström, ‘Spridda vaxtgeografiska vidrig till Skandinaviens flora.’

*Bot. Zeitung* (Nov. 23, 30; Dec. 7, 14).—M. W. Beyerinck, ‘Die Bacterien der Papilionaceen-Knöllchen.’ — (Dec. 7). L. Meyer, ‘*Vaccinium uliginosum* × *Vitis-Idæa.*’

*Bull. Soc. Bot. France* (xxxv., pt. 4: Nov. 1). — L. Guignard & —. Colin, ‘Sur le présence de réservoirs à gomme chez les Rhamnées.’ — H. Emery, ‘Le bourgeon du Tulipier.’ — L. Daveau, *Armeria Rouyana*, sp. n. — A. Pomel, ‘Etudes sur des espèces barbaresques des types des *Evax* et des *Filago*’ (*Evax linearifolia*, *E. psilantha*, *E. mucronata*, *Evacopsis angustifolia*, *Pseudevax* (subg. n.) *mauritanica*, *Filago ñumidica*, spp. nn.).—E. Battandier & L. Trabut, ‘Excursion dans le sud Oranais’ (*Aristida lanuginosa*, sp. n. (nomen). — C. Degagny, ‘Origine nucléaire du protoplasma.’ — E. Cosson, ‘De speciebus *Polygala* ad subgenus *Chamæbuxus* pertinentibus.’—E. Bornet, *Laminaria Rodriguezii*, sp. n. (1 plate).—P. A. Dangeard, ‘Sur la formation des renflements souterains dans l’*Eranthis hyemalis.*’ — P. Duchartre, ‘Replacement des étamines pour des carpelles chez le *Sedum anglicum.*’ — C. Flahault, ‘Herborisations algologiques au Croisic.’

*Bull. Torrey Bot. Club* (Dec.).—A. Hollick, ‘A recent discovery of Hybrid Oaks on Staten Island’ (3 plates).—F. S. Collins, ‘Algæ from Atlantic City, N. J.’—J. F. James, ‘Notes on Development of *Corynites Curtissii*’ (1 plate). — T. Meehan, ‘The bract in *Tilia.*’—E. E. Sterns, The “bulblets” of *Lycopodium lucidulum.*

*Flora* (Nov. 21). — A. Hansgirg, ‘Beitrag zur Kenntniss der Algengattungen *Entocladia* Reinke’ (1 plate).—J. Müller, ‘Revisio Lichenum Eschweilerianorum.’ — (Dec.). J. Velenovsky, ‘Zur Deutung der Fruchtschuppe der Abietineen’ (1 plate).—J. Müller, ‘Lichenologische Beiträge.’

*Gardeners’ Chronicle* (Dec. 8). — *Lilium Henryi* Baker, n. sp.—*Disa lacera* var. *multifida* N. E. Br. (fig. 93).—(Dec. 15). *Catasetum Garnettianum* Rolfe, sp. n. — (Dec. 29). *Aloe longiflora* Baker, *Pleurothallis punctulata* Rolfe, spp. nn.

*Journal de Botanique* (Dec. 1). — P. A. Dangeard, 'La sexualité chez quelques Algues inférieures.' — P. Maury, 'Cypéracées de l'Ecuador et de la Nouvelle-Grenade' (*Rhynchospora panicifolia*, sp. n.). — (Dec. 15). P. van Tieghem, 'Hydroleucites et grains d'aleurone.' — G. Lagerheim, 'Sur un genre nouveau de Chytridiacées' (*Olpidiella*). — Boudier & Patouillard, *Hydnangium monosporum*, *Helvella Barlæ*, spp. nn.

*Journ. Linn. Soc.* (xxiii.: Nos. 156–7 : Dec. 29).—F. B. Forbes & W. B. Hemsley, Flora of China (*Compositæ: Vernonia esculenta*, *Aster alatipes*, *A. Fordii*, *A. Henryi*, *A. limosus*, *A. Oldhami*, *A. procerus*, *Pluchea? pteropoda* (t. 11), *Leontopodium sinense* (t. 12), *Carpesium minus* (t. 13), *Senecio Faberi*, *S. Henryi*, *S. Jamesii*, *Saussurea lamprocarpa*, *S. microcephala* Franchet, *Ainsliæa glabra* (t. 14), *A. ramosa*, *Crepis heterophylla*, *C. longipes*, *C. prenanthoides*, *Faberia* (gen. nov.) *sinensis*, *Lactuca elata*, *L. triflora*, *Prenanthes Faberii*, spp. nn., all of Hemsley.— (xxiv.: No. 164: Dec. 8). C. B. Clarke, *Panicum supervacuum*, sp. n. — Id. & J. G. Baker, 'Ferns of Northern India' (*Alsophila sikkimensis*, sp. n.). — G. E. Post, 'Diagnoses Plantarum Novarum Orientalium' (*Hesperis aintabica*, *Malcomia auranitica*, *M. zachlensis*, *Æthioonema longistylum*, *Æ. gileadense*, *Dianthus auraniticus*, *Silene Porteri*, *Linum rigidissimum*, *Medicago Shepardi*, *Trifolium Candollei*, *T. alsadami*, *Astragalus trachoniticus*, *Bupleurum Boissieri*, *B. antiochium*, *Pimpinella depauperata*, *Scaligeria capillifolia*, *Carum brachyactis*, *C. nudum*, *Chærophyllum oligocarpum*, *Ferulago Amani*, *F. Blancheana*, *F. auranitica*, *Johrenia Porteri*, *Daucus jordanicus*, *Galium cymulosum*, *G. lanuginosum*, *Asperula dissitiflora*, *Erigeron setiferum*, *Achillæa Shepardi*, *Cirsium Amani*, *Centaurea Doddsii*, *C. trachonitica*, *Campanula Amasiæ*, *Anchusa Shattuckii*, *Trichodesma Boissieri*, *Verbascum Barbeyi*, *V. gileadense*, *V. qulebicum*, *Celsia Berneti*, *Scrophularia gileadense*, *Salvia purpurascens*, *Nepeta trachonitica*, *N. Shepardi*, *Teucrium auraniticum*, *Alopecurus involucratus*, spp. nn.). — S. G. Shattock, 'On the Scars occurring on stem of *Dammara robusta*' (1 plate).— E. A. L. Balters, 'Three new Marine Algæ' (*Ectocarpus Holmesii*, *Phyllitis filiformis*, *Ralfsia spongiocarpa*: 1 plate). — W. Fream, 'The Flora of Water-meadows.' — E. G. Baker, 'A new species of *Cytinus* (*C. Baroni*), from Madagascar, constituting a new section (*Bothryocytinus*) of that genus' (1 plate).

*Journ. Royal Microscopical Soc.* — J. Rattray, 'Revision of the genus *Auliscus*, &c.' (5 plates: *Isodiscus*, gen. nov.).

*Magyar Növénytani Lapok* (Nov.: No. 133).—A. Richter, 'Adatok a Veportegység és Fabova hegycsoport flórájának ismeretéhez.'

*Oesterr. Bot. Zeitschrift* (Dec.).—A. Heimerl, 'Beitrag zur niederösterreichischen Pilz-Flora.' — B. Blocki, *Potentilla Andrzejowskii*, sp. n.—L. Simonkai, *Achillæa tanacetifolia*.—K. Vandas, Zur Flora von Süd-Hercegovina.—A. F. Entleutner, Anlangen von Meran.— V. v. Borbás, 'Formen des *Bromus erectus*.'—F. Koclek, 'Bildungs abweichungen an *Paris quadrifolia*.' — E. Formánek, Flora von Bosnien.

## *LINNEAN SOCIETY OF LONDON.*

*December* 20, 1888. —Mr. W. Carruthers, F.R.S., President, in the chair. The Rev. G. E. Post was elected a Fellow.—Mr. Clement Reid exhibited fruit of the hornbeam from the pre glacial forest bed at Pakefield, near Norwich, and not previously recorded as occurring in any British deposit.—Mr. T. Christy exhibited a collection received from Java, of hairs from the base of various ferns, notably *Cibotium Cumingii*, and a species, as supposed, of *Dicksonia*, used as a styptic for staunching blood. Professor Stewart, in pointing out that the use of similar material for a like purpose in China was well known to surgeons, took occasion to explain the nature of the so-called "lamb of Tartary," on which an instructive little volume had been published by the late Mr. Henry Lee, F.L.S. —Mr. D. Morris remarked that the use of "fern-hairs" was also known as a styptic in South America, whence specimens had been forwarded to the herbarium at Kew.—A paper was then read by Mr. D. Morris "On the Characteristics of Plants included under *Erythroxylon Coca*, Lamarck," with a description of a new variety which he proposed to name, from its origin, *E. novo-granatense.* He pointed out that the well-known coca-plant had been noticed by botanists and travellers for the last 300 years, and that although Clusius was generally regarded as the earliest writer on it, he had been anticipated by Nicholas Monardes, in his 'Historia Medicinal,' published at Seville, in 1580, and translated by Clusius, who printed it in a condensed form in his 'Exoticorum libri decem,' in 1605. The plant was first described as a species by Lamarck, in the 'Encyclopedie Methodique,' in 1786, from specimens brought by De Jussieu from Peru. Until lately the leaves had been used merely as a nervous stimulant, like opium in China, and betel in the East Indies; but had latterly come into prominence as the source of cocaine, a valuable alkaloid possessing anæsthetic properties in contact with the mucous membrane. There were several climatic forms more or less distinct, and after describing the typical plant Mr. Morris pointed out the characters by which *E. novo-granatense* might be distinguished.—Mr. Spencer Moore contributed a paper on *Apiocystis*, which he regarded as a *Volvocinea.* The ciliated form was described, and it was shown that its zoospores may sometimes escape as cænobia, like a degenerate *Volvocinea* which has exchanged the motile for the fixed condition; the sexual cells being zoogametes, its affinity is rather with *Pandorineæ* than with oogamous *Volroceæ.* The paper was criticised by Mr. A. W. Bennett and Professor Marshall Ward, who, while testifying to the importance of the investigation, expressed the hope that no changes would be made in classification until further examination had been made of some of the stages at a critical period of development.—Mr. George Murray gave his support to the views expressed by Mr. Moore.

# NOTES ON PONDWEEDS.

By Alfred Fryer.

**Potamogeton varians** Morong in Herb. ined.—Stem springing from a tuberous rootstock, slender, usually simple below, with a few branches above the middle, *not divided into secondary* branchlets; or in shallow water with a few branches from the base, each springing from the axil of a persistent leaf, and then rarely with very short secondary branchlets. Leaves varying from narrowly linear-lanceolate membranous, to oblong obovate spathulate or orbicular coriaceous. Lowest submerged leaves reduced to phyllodes, or narrowly linear-lanceolate, bodkin-pointed; ordinary submerged leaves sessile or *stalked*, narrowly lanceolate, attenuated towards each end, or *spathulate oblong*, or obtuse mucronate, *flat* and ascending, or rarely folded and recurved. *Floating leaves alternate, obovate, oblong, spathulate* or *orbicular, coriaceous*, rarely membranous, *long-stalked, belonging to the barren state of the plant*, and never directly sustaining the flower-spike. Stipules narrow, slender, herbaceous, persistent, blunt, or contracted into a short mucro when dry, not becoming greatly enlarged on the upper part of the stem, nor cymbiform, to support the inflorescence. *Peduncles lateral*, not necessarily subtended by opposite coriaceous leaves, but usually springing from the stem *opposite a membranous leaf*, resembling the submerged leaves in shape and structure, or rarely *opposite a stipule only*, very rarely opposite a coriaceous leaf; slightly thicker than the stem, not swollen upwards, as long as the opposite leaf: 2–3 in. Fruiting-spike ⅔–1 in. long, rather slender, not dense; *drupelets small*, flattened and impressed at the sides, nearly circular in outline, with a short subcentral beak; *central keel acute, almost winged;* lateral ridges prominent. Colour of the whole plant, reddish green, or light green, drying darker; the lower part of the stem and young shoots sometimes bright red.

*P. varians* is a plant of diffuse growth, usually but little branched, with slender stems from 6 to 18 in. long. It has few permanently submerged branches, the mass of vegetation ultimately rising and floating on or near the surface of the water. When growing in shallow, reedy ditches, its upper branches are often lifted out of water, and continue to grow in the air. It is also remarkable for its ability to grow, when forsaken by the water, on the grassy bottoms of ditches as dry as an ordinary meadow. Under these conditions it forms little tufts of leaves in the axil of each stipule along the stem, which continue to grow fully exposed to the air and sunshine. The already-formed submerged leaves on the branches that grow under water do not die, but become coriaceous, so as to better withstand the effects of heat and drought. Some of the leaves produced under these circumstances are remarkable for being *membranous and transparent*, like those of *P. plantagineus* grown under like conditions. The true land-form also is freely produced, and enables the rootstock to swell into moniliform tubers, or these are at times produced directly from stolons thrown out by the land-form.

When growing in shallow water, barren states of the plant look like a miniature form of *P. coriaceus*, but the resemblance is merely superficial; for shallow-water states of the latter plant do not at all resemble *P. varians*, but, on the other hand, approach *P. Zizii.* The early spring growth of *P. varians* is like that of *P. heterophyllus*, to which plant it is most nearly allied, but differs in its more diffuse, less submerged growth, and in the compressed circular-outlined fruit. From *P. Zizii* it is clearly separated by the small compressed fruit, and usually by its much smaller size; but in luxuriant states of the plant, and especially late in the season, barren shoots are produced which closely approach autumn states of *P. Zizii.*

*P. varians* has been observed in America for some years, but I am unable to give the history of its discovery in that country. The earliest-gathered specimen I possess, through the kindness of the Rev. T. Morong, is labelled by him:—

> " *Potamogeton gramineus* L.
> Var. ? *spathulæformis* Robbins.
> *P. spathæformis* Tuck.
> *P. varians* Morong.
> Coll. T. M. in Mystic Pond, Medford, Mass.,
> July 10, 1879."

I here copy from the 5th ed. of Asa Gray's 'Manual of the Botany of the Northern United States,' 1879, Dr. Robbins' description of var. ? *spathulæformis*:—" *P. gramineus* L., var. ? *spathulæformis* (*P. spathæformis* Tuckerman in herb.). Branches scattered; floating leaves obovate or oblong, with a larger point; submersed ones spathulate-oblong, obtuse, mucronate, sometimes recurved; spikes large and densely flowered.—Mystic Pond near Boston, Tuckerman. The fruit is lacking to prove its rank."

This description well agrees with the fenland plant, except as regards the flower-spikes, but those in Cambridgeshire specimens from Blockslock Moor, near Mepal, are certainly both large and densely flowered. This Mepal plant is the form or state mentioned above as producing autumnal shoots so like those of *P. Zizii.* It is also remarkable for having a tendency to produce peduncles which are *forked* from the middle, each limb of the fork subtended by a slender bract, and bearing a flower-spike.

Of the American *P. varians*, Mr. Morong writes:—" It never did form fruit, so far as known, and so has sometimes been considered a hybrid. I am not satisfied whether it should rank as *P. gramineus* or *P. Zizii.* Dr. Robbins rather inclined to the former . . . but I am more inclined to place it with *Zizii*, I must confess." This opinion of the learned American botanist is in accordance with that of Dr. Trimen, who quotes in the 'Journal of Botany' for October, 1879, "*spathæformis*" as a probable synonym of *P. Zizii*, and says:—" To judge from specimens in the British Museum, labelled '*P. spathæformis* Tuckerm. herb.,' the *P. gramineus* var. *spathæformis* is also referable to *P. Zizii.*" Now these opinions carry great weight, but I think the small drupelets, which approach those of *P. heterophyllus*, must place the American and British plants under the latter species as an *aggregate*. But I further think it would be most in accordance with what has already been done in the *lucens*-group to make a distinct "species" of this multiform plant, as originally proposed by Mr. Morong.

The suggestion as to the possible hybridity of *P. varians* remains to be noticed. For a long time I was unable to observe any facts which pointed to any of our fenland varieties of *Potamogeton* being the result of cross-breeding between "species" more or less nearly allied. But observations made during the past summer strongly induce me now to believe that *lucens*, *heterophyllus*, and *Zizii* do occasionally interbreed, and also that *P. lucens* crosses with *P. perfoliatus*. If, however, we regard *P. varians* as *heterophyllus* and *Zizii*, it is somewhat remarkable that such *exactly similar* plants should be produced on both sides of the Atlantic, especially when we call to mind that the "*heterophyllus*" and "*Zizii*" of the United States are not by any means like those of Cambridgeshire, but have a distinct facies of their own in all the specimens I have seen. Now, on the contrary, *P. varians* from the two countries is so exactly alike that if the specimens in my herbarium were mixed together, no botanist could separate them! Yet so susceptible is *varians* to local influences that, although in America, where it does not fruit, it is very constant to type, in Cambridgeshire examples I can name the ditch from which each specimen was gathered at a glance, even if the localities are separated by a few yards only. Here we have exact resemblance between the two plants which represent the type described by the Rev. T. Morong, combined with extreme variability from seed in the locality where the plant fruits. This variation in the progeny of the fertile plant is often a marked feature in hybrids between closely-allied forms. We often see the same instability in the artificially-crossed vegetables and flowers of our gardens, before the newly-produced form becomes sufficiently "fixed" to come true from seed. I am aware that it may be objected that the cases are not parallel; that the garden-plants are not hybrids between distinct "species." Possibly so: but what is a *distinct species* in *Potamogeton?* No one really knows—those who know the genus best will find themselves the least able to answer the question with any great degree of confidence. I know of only some half-dozen British forms of the genus so distinct that one does not feel doubtful as to the exact limits we may safely assign to them. *P. lanceolatus* Smith is one of the most isolated forms we have—so much so that I know not where to place it in the genus. Yet that acute botanist, Mr. W. H. Beeby, suggests to me a possible hybrid origin for this distinct-looking plant, that I cannot gainsay, but which, if proved to be correct, would raise the question of how far cross-breeding has helped to make the genus what we now see it. I repeat: let us name all definable forms the origin of which we cannot reasonably trace; this will lead to their examination and study, and possibly to direct experiment in crossing certain species, by which alone many questions can be solved.

I may say that the description I have above given of *P. varians* is compiled solely from Cambridgeshire specimens, as the object of these "Notes" is merely to fully describe the forms of *Potamogeton* that grow in the fens, or which I may be able to cultivate. I have to warmly thank the Rev. Thomas Morong for a fine series of his proposed species, and for examining and naming my Cambridgeshire specimens; and Mr. Bennett, too, for first suggesting that my plant was *P. varians*, and for the loan of books and specimens.

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## NOTES ON NOMENCLATURE, &c.

### FROM LANGE'S 'NOMENCLATOR FLORÆ DANICÆ.'

[THE following notes are extracted from the 'Nomenclator Floræ Danicæ,' in accordance with a promise made in this Journal for 1888, p. 254. Mr. Arthur Bennett has kindly added an occasional note, which is placed in square brackets, with his initials attached.]

*Anthericum calyculatum* Oed.—"Linnæus species 2 bene distinctas conjunxit, quarum major, in montibus Europæ australioris et quoque in insula Gottlandia occurrens, vulgo nomine Linnæano (*Tofieldia calyculata*) designata, in Fl. Dan. Suppl. tab. 13 exhibetur, hæc vero minor, in paludibus Europæ borealis crescens, *T. borealis* vulgo appellatur, etsi lege prioritatis hæc potius *T. palustris* Huds. (non DC.) esset nominanda."

*Sedum anglicum* L. and *Hudsonianum* Lange.—"De formis *Sedi anglici* conf. Lange, Pugill. pl. Hisp. p. 243 (Vidensk. Medd. f. Naturh. Foren. 1865, p. 48). Forma h. l. depicta, in Norvegia lecta, radice perenni, foliis subgloboso-ovalibus obtusissimis, petalis planiusculis, carpella multo superantibus etc., distinguenda sistit *S. anglicum* Huds. typicum quare *l. c.* a *Hudsonianum* nominatum est."

*Potamogeton mucronatus* Schrad.—"*Potamogeton compressus* L. a plerisque, duce E. Fries (Nov. p. 44) cum *P. zosteræfolio* Schum. identica habetur; cum vero alii nomen Linnæanum ad *P. obtusifolium* M. K., alii ad *P. acutifolium* Lk., alii denique ad hanc nostram speciem (*P. mucronatum* Schrad.) retulerint ob ambiguitam nominis *P. compressi* præferendum erit hoc nomen relinquere. Nostra planta certissime est *P. mucronatus* Schrad. (*P. Friesii* Rupr., *P. pusillus major* Fr.), species intermedia inter *P. obtusifolium* M. K. et *P. pusillum* L. Linnæus ipse ceterum pro *P. compresso* suo tabulam nostram citavit quæ evidenter a *P. zosteræfolio* Schum. valde aliena est." [I hold this to be a doubtful name; Roemer and Schultes (Mant. iii.) and Mertens and Koch (Deutsch. Flora) think it is only *Cornutus*=*acuminatus*, Schum. i. e. *lucens* var. *acuminatus* of British botanists.—A. B.]

"*Statice Limonium* L. stirpe collectiva, hodie vulgo et quidem optimo jure in 2 species divisa est quarum altera, *S. Scanica* Fr. (*S. Behen* Drej.), præcipue ad maris Baltici et occidentalis littora occurrit, altera vero, *S. bahusiensis* Fr. (*S. rariflora* Drej.), littoribus Fioniæ et Sjællandiæ borealis nec non Sueciæ occidentalis magis priva est. Figura nostra ob ramos inflorescentiæ adscendentes,

laxifloras ad formam a borealem *S. bahusiensis* Fr. referri debet, dum *S. bahusiensis β danica* (humilior, ramis erectiusculis) in Fl. Dan. tab. 2410. *S. Scanica* Fr. in Fl. Dan. tab. 2409 delineata est."

"*Galium palustre* L. subsp. *elongata* (*G. elongatum* Presl.) a forma typica *G. palustris* recedit statura robustiore follis verticillorum 4–6 lineari-lanceolatis, medio latioribus (nec obovatis) ramis fructiferis patentibus (neque reflexis) floribus fructibusque majoribus. Figuræ meliores utriusque formæ adsunt in Fl. Dan. tabb. 2764 et 2765."

*Astragalus danicus* L.—" Tab. 614 non, ut in textu indicatur, est *A. arenarius* L., species a nostra valde aliena, sed cum eadem a pluribus autoribus confusa, in Fl. Dan. Suppl. tab. 87 depicta. Nostra species est *A. danicus* Retz, nomen unicum certum, sed immerito cum *A. hypoglottide* L. a DC. et pluribus autoribus conjunctum. Hanc ultimam tam e descriptione quam e synonymis et loco natali abunde diversam esse alibi demonstrare conatus sum (Act. Soc. Scient. Reg. Dan. 1873, p. 126)."

"*Sedum Telephium β purpureum* L. recte, ut videtur, in textu hujus tabulæ nominatum est. Sine dubio autem a *S. Telephio* L. specifice distincta est, et huc referendum nomen *S. purpurei* Link. inter *S. Fabariam* Koch et *S. Telephium* L. (var. *purpurascens* pl. autt) exacte intermedia species. An huc quoque pertinent *S. lividum* Bernh., ut Drejer (fl. exc. haun.) voluit, incertum videtur, cum beat. A. Braun. Specimina hujus authentica aliquantum a nostra planta differre monuit. *S. purpurascens* Koch. ex descriptione videtur cum nostra convenire, non obstante quod figura Reichenbachii (ic. crit. fig. 968) citatur, quæ figura certissime ad varietatem *S. Telephii* pertinet (*S. purpurascens* Lge., Haandb. ed. 3, p. 357. vix Koch, *S. Telephium angustifolium* Lilja. *cf.* Falck in Bot. not. 1867, p. 13."

*Epilobium virgatum* Fr.—" In textu nomine *Epilobii tetragoni* L. designatum potius est *E. Virgatum* Fr. (*E. obscurum* pl. autt.) quam species vulgo *E. tetragonum* dicta (*E. adnatum* Griseb.). Folia enim speciminis delineati pleraque opposita, basi rotundata, non decurrentia, et alabastra obtusa, quæ omnia in *E. virgatum* bene quadrant. Nomen Linnæanum *E. tetragonum* forsan potius ad *E. roseum* Schreb. spectat, et ideo ut incertum postponendum; *E. obscurum* Schreb. a plerisque ad plantam h. l. depictam translatum, etiam dubium videtur, quare nomen certissimum *E. virgati* Fr. adhibui. Eadem planta in Fl. Dan. tab. 2588 depicta est." [There seems no doubt as to this: Haussknecht is of the same opinion.—A. B.]

Tab. 1277.—" *Orchis militaris* inscribitur, sed Linnæi *O. militarisa* et Suecia in Fl. Dan. Suppl. tab. 163 depictus, in Dania haud occurrit, dum figura nostra speciem affinem, sed optime distinctam, *O. purpureum* Huds. (*O. fasca* Jacq.) sistit, quæ in insula Meen optime viget, in Suecia nondum lecta. E Linnæi scriptis (Fl. Suec. iter Oeland. etc.) elucet, plantam Suecicam esse principalem, postea vero sub eodem nomine specifico varietates distinxit Linnæus, inter quas *β* et *δ* ad *O. purpureum* referendæ sunt. Rationes ulteriores hujus nomenclaturæ exposui in Act. Soc. Scient. Dan. 1874, p. 54."

"*Œnanthe pimpinelloides* L. nusquam in Dania lecta est, et hoc nomen in textu indicatum, igitur corrigendum. Figura enim sistit *Œ. Lachenalii* Gmel. quæ hinc inde ad littora Daniæ occurrit, et ab *Œ. pimpinell.* L. distinguitur fibris radicalibus, aliis filiformibus, aliis apice sensim clavato-incrassatis (nec omnibus filiformibus, apice subito globoso-incrassatis), umbella fructifera convexa, radiis non incrassatis (nec plana, radiis demum incrassatis). In tabula tamen neque fibræ radicales neque umbella fructifera depictæ sunt, ita ut characteres distinctivi desiderantur."

*Sedum sexangulare* Horn.—"Tam in textu Fl. Dan. quam a plerisque autoribus planta h. l. depicta *Sedum sexangulare* L. appellatur. Si vero definitionem *S. sexangularis* apud Linnæum respicis (Cod. Linn. p. 445), folia subovata erectiuscula . . . . flores in singulo ramo cymæ raro ultra tres, . . . . cum *S. acri* convenit facie magnitudine, floribus, loco, differt foliis ante florescentiam evidentissime 6 fariam imbricatis et sapore insipido nec acri * videbis, hæc omnia in plantam nostram minime convenire. Etiam synonyma a Linnæo ad *S. sexangularem* citata (Sempervivum minus vermiculatum insipidum. Bauh. Pin. 284. Sedum minimum luteum non acre. J. Bauh. Hist. 3, p. 695) ad plantam *S. acri* arcte affinem spectant, et prætervidendum non est. Linnæum *S. sexangulare* suum cum *S. acri*, nec cum *S. reflexo* comparare, sed planta h. l. depicta multo magis huic quam illi affinis est. Sed revera varietas sat distincta *S. acris* haud raro occurrit, quæ cum descriptione Linnæi *S. sexang.* supra citata bene convenit foliis brevibus et arcte adpressis, quare suspicor, hanc *S. sexangulare* Linnæi verum repræsentare. Nostra vero, *S. boloniense* Lois. nominanda, si omnino Linnæo innotuit, potius sub formis *S. reflexi* v. *S. rupestris* L. quærenda, quibus magis affinis est." [Cfr. Wikkomm and Lange, Prodr. Fl. Hispan. iii. 138.—A. B.]

"*Taraxacum palustre* DC.—Foliola periclinii adpressa demonstrant, recte esse determinatum, sed scapo erecto foliorum laciniis late triangularibus, foliis nonnullis integris, dentatis differt ab alia forma in pratis Daniæ haud raro, quæ in Fl. Dan. tab. 1935 nomine *Leontod. obliqui* (non Fr.) depicta est. Hæc scapo deflexo, foliis angustis, pinnatisectis, segmentis linearibus insignis var. *tenuisecta*, nostra vero, quæ forsan cum *T. livido* W. Kit. identica est, var. *integrifolia* appellari possit."

"*Erythræa littoralis* Fr. est species sat polymorpha, apud nos rarius et fere semper in pratis maritimis obvia, dum *E. Centaurium* L. fere nunquam ad littora maris, sed in campis pratisque siccis satis frequenter occurrit. Nomen igitur bene convenit, neque, ut suadet cl. Wittrock, reficiendum quia *Chironia littoralis* Turn. formam ejusdem floribus congestis imprimis respicit. Eadem frequenter *E. linarifolia* Pers. nominata est, sed observante cl. Wittrock (Bot. not. 1884, p. 112) *E. linariæfolia* (Lam.) alia est species, quare hoc nomen in hanc nostram applicari posse negat, dum vero nomen antiquius *Erythræa vulgaris* (*Centaurium vulgare* Rafn) præfert. Equidem olim (Haandb. D. Fl.) duce Fries (Novit. p. 73) *C. vulgare* Rafn hujus, *C. Erythræa* Rafn synonymon *E. Centaurii* esse supposui. Sed accuratiore examine descriptionis Rafnianæ persuasus sum, synonyma Rafnii rectius esse adhibita ad Hornemanno qui specimina Rafnii sine dubio viderat, cum in textu tabulæ nostræ *C. Erythræa* Rafn synonymon *E. littoralis* esse statuerit. Rafn enim *C. vulgari* suo folio *acuta*, corollæ tubum elongatum adscribit, *C. Erythræa* Rafn vero foliis obovatis *obtusis* describitur, et præterea *C. vulgare* in pascuis pratisque frequentem dicit, quod bene in *E. Centaurium*, nec in *E. littoralem* quadrat, quam non nisi unico loco Bornholmiæ vidit. Hisce igitur rationibus commotus nomen certissimum *E. littoralis* Fr. præferendum esse censeo *E. vulgari* Wittr., quatenus nomini Rafniano fundatum est." [We have under *E. littoralis* two plants. Griffith's, found on the Welsh coast, is different from the West England and Cheshire plant; but I cannot determine it at present.—A. B.]

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* *S. acre* apud nos sæpius insipidum quam sapore acri observatur, quare character ex sapore sumtus ad quæstionem dijudicandum parum valet.

*Cochlearia groenlandica* L. "(Tab. 1934).—Hæc figura, secundum expositionem Noltei (Novit. fl. Holsat. p. 61) ad *Cochleariam danicam* ut forma integrifolia relata est. Sed specimen delineatum, in Groenlandia lectum, et a *C. danica* L. et a *C. officinali* differt siliculis *aveniis!* a *C. danica* insuper foliis radicalibus cordato-reniformibus (nec hastatis), integerrimis, petalis majoribus etc. recedit. Ideo in Consp. fl. Groenl. pp. 35–36, exposui rationes, quibus adductus sum, plantam in Groenlandia satis vulgarem esse *C. groenlandicam* L., et brevis diagnosis Linnæana (foliis minimis, carnosis cordatis v. reniformibus, obtusis, integerrimis v. utrinque dente unico obsoleto notatis) huic opinioni non obstat. Planta nostra non solum in Groenlandia, sed quoque in Islandia et Finmarkia observata est, quod etiam de sua *C. groenlandica* observat Linnæus. (Specimina Scandinaviæ borealis, nomine *C. acticæ* Fr. vulgo designata ab hac vix differunt)."

"*Alchemilla fissa* Schummel. — Specimen færoense, a beat. Forchhammer lectum h. l. depictum est; postea cl. Rostrup pluribus locis insularum færoensium eandem legit et (Bot. Tidskr. iv. p. 30) descripsit. Planta silesiaca, ad quam relata est, in Wimm. Fl. v. Schlesien vol. 2 in titulo depicta, non nisi characteribus levioribus recedit a færoensi (foliis subglabris nec adpresse sericeis, lobis brevioribus et latioribus, panicula magis effusa) ceterum ad unam eandemque speciem referendæ sunt, quæ, observante cl. Wimmer (*l. c.* l. p. 143) multo magis *A. vulgari* quam *A. alpinæ* affinis est. Sed *A. conjuncta* Bab. (Man. ed. 7, p. 101) in insulis færoensibus a Trevelyan lecta, quam Nyman (Consp. p. 238) inter Synonyma nostræ posuit, certissime cum hac haud conjungi potest. Babingtonii *A. conjuncta* enim non nisi statura proceriore, foliorum segmentis basi conjunctis et inferioribus deorsum spectantibus differt ab *A. alpina*, et speciminibus Brittanicis a cl. Bennett missis convictus sum, hanc toto cœlo tam a figura Fl. Dan. quam a speciminibus a cl. Rostrup lectis differre. Quare hæc nostra foliis usque ad medium fissis (nec basi solum conjunctis) subtus pubescentibus, supra viridibus, segmentis infer invicem longe distantibus distincta, *A. fissa* Schumm. var. *færoensis* jure appellari debet."

Tab. 2231.—"*Arenaria marina* dicta, non est *Lepigonum marinum* Wahlb. quod radice crassiore perenni, floribus majoribus, seminibus lævibus, plerumque alato-marginatis distinguitur, et quod in Fl. Dan. tab. 740 depictum est. Hæc figura autem ad *Lepigonum salinum* (Presl.) referenda est, et quidem ob semina tuberculata ad specimen var. *neglectæ* (*L. neglectum* Kindb. Lge. Haandb. ed. 3, p. 334) delineata est. Semina autem indistincte variant lævia v. tuberculata et cum reliqui quoque characteres ad distinguendum inter 2 species (*L. lejospermum* et *L. neglectum*) vix sufficiant, in unam (*L. medium* Fr. etiam includentem) conjunxit et Leffler (Oesterr. bot. Zeitschr. 1869) sed nomen ab eo datum, *L.* (*Spergularia*) *caninum*, jure prioritatis *L. salino* postponendum erit."

"*Melampyrum pratense* L. non parum variabile, apud nos formis hisce præcipue ludit; 1 *angustifolium* (*M. montanum* Johnst.) gracile, sæpe hirtulum, foliis lineari-lanceolatis, bracteis integris v. basi breviter dentatis; 2 *integerrimum* Doell. foliis lanceolatis integerrimis; 3 *latifolium* Bab. (*ovatum* Spenn.) glabrum, robustius, foliis lanceolato-ovatis, bracteis basi bidentatis v. subintegris; 4 *laciniatum* (*M. laciniatum* Kosh et Zinger, Bull. Mosc. 1881, p. 3, tab. 3) foliis anguste lanceolatis, bracteis petiolatis, basi subcordata profunde laciniatis, laciniis utrinque 2–4. Corolla calyce duplo longiore. Ad hanc formam (4) pertinet figura h. l. depicta, sed dolendum est, non indicatum esse locum, in quo lecta est; hæc enim rarior est quam reliquæ formæ (legi ad Margretelund Jyllandiæ) ceterum in Rossia hinc inde occurrit et nuperrime e Gallia australi specimina accepi a cl. Hervier lecta."

*Hieracium strictum* Fr.—"(Tab. 2425). Planta conspicua h. l. depicta vario modo determinata est. In textu *Hieracium prenanthoides* Vill. appellatur, sed ab hujus forma typica, qualis in Norvegia et in Europa australi occurrit, valde differt, et si definitioni Friesianæ fides habenda est, potius ad 'Foliosa' quam ad 'Prenanthoidea' referri debet: ob caulem dense foliatum, ligulas glabras (nec ciliatas), achenia atrofusca (nec pallida), Beat. E. Fries olim (Symb. Hier. p. 184, Epicr. p. 125) *H. crocato* Fr. eam adsociavit, postea in litteris pro *H. aurato* suo declaravit, et sub hoc nomine in Consp. fl. Grœnl. eam enumeravi. Et quidem descriptio *H. aurati* Fr. (Epicr. p. 124) sat bene cum nostro specimine convenit. E contrario cl. Lindeberg in litt. ad *H. strictum* Fr. retulit, quare inter species criticas adhuc manet. Altera vero species in Groenlandia australi hinc inde obvia, a me in Consp. fl. Grœnl. minus recte cum nostra conjuncta, ad *H. prenanthoidem* ut var. *rigorosam* (Laest.) ducit cl. Almquist (Vet. Akad. Ofversigt, 1884, p. 49)." [*H. strictum* Fr. (*verum*) is very different in colour from *H. prenanthoides* Vill., and has the leaves much more parallel-sided. The true plant (as I believe) was gathered in Ayrshire last year by Mr. D. A. Boyd.—A. B.]

Tab. 2559.—"'*Aspidium angulare*' ad specimen in insula Christianse lectum delineatum, est *A. aculeatum* (L.) Sw. (*A. angulare* Kit.) quod nomen a Linnæo jam datum servari debet. Præterea a botanicis Brittanicis nomine *A. angularis* alia forma designatur, quæ in Dania desideratur." [True *angulare* is rare in Britain;

most specimens so called are really *lobatum* with squarer cutting than usual.—A. B.]

*Potentilla arenaria* Borkh.—"Hæc planta, observante cl. Kerner et pl. autt., non est *P. cinerea* Chaix, quæ modo in Alpibus et quidem rarissime occurrit, sed *P. arenaria* Borkh. (Fl. Wett. ii. p. 248) in Europa media haud rara. Synonymon *P. incana* Mœnch huic respondet, dum vero *P. incana* Lam. est alia species, foliis trifoliatis diversa, quare illud nomen pro nostra adhiberi nequit. In Fl. Dan. tab. 2540 huic affinis *P. verna* L. depicta est. Nonnulli (v. c. Kerner) contendunt, hoc nomen ad *P. maculatum* Pourr. spectare, et negari non potest, plures characteres et synonyma cum hac convenire, sed tam loca natalia a Linnæo *P. vernæ* adscripta ('in pratis siccioribus et campis frequentissime') quam tempus florendi ('floret cum *Tulipa* et *Anemone nemorosa*') minime cum *P. maculata*, sed optime cum *P. verna* nostra conveniunt. Hæc autem sine dubio est species collectiva 2 species affines includens, ita ut nomen æquo jure in utramque applicari potest, cum autem *P. maculata* æstate floreat, huic nomen 'vernæ, parum appropriatum videtur. Neque opinioni cl. Kerneri assentior, Linnæo *P. opacam* nostram ignotam fuisse et *P. opacam* Linnæi esse *P. vernam* nostram, nam descriptio *P. opacæ* L.' caulibus filiformibus, foliis radicalibus 5–9 foliolis compositis magis villosis ' etc. longe melius *P. opacæ* nostræ quam *P. vernæ* convenit.'" [Altering the names (that is, practically interchanging them), as advocated by some Scandinavian authors, would seem rather to add to the difficulty than to solve it. —A. B.]

"*Taraxacum erythrospermum* Andrz. (Bess. Fl. Podol. 1822) est nomen serius datum quam *T. Corniculatum* (Kit. sub *Leontod.* in Scholt. Oesterr. Fl. 1814) et huic igitur postponendum aliud synonymon est *Leontodon obliquus* Fr. Nov. fl. Suec. ed. i. 1814). Et nomen Kitaibelii quoque præferendum, quia e charactere facile discernendo, appendice enim corniformi squamarum periclinii, sumtum est, dum color acheniorum minime constans sæpe enim fusco-cinereus (nec rufus) est."

Tab. 2643.—"*Avena elatior* f. *typica*, sic appellata, etsi rarissime observatur, quia flores spicularum magis quam in forma communi completæ sunt, omnes nempe ☿ aristatæ, cum in vulgari flos inferior ♂ aristata, superior vero ☿ mutica. Hæc forma igitur probat, distinctionem inter *Avenam* et *Arrhenatherum* esse artificialem, utpote charactere haud constante fundatam."

"(Tab. 2663). *Lappa intermedia* Lge. (sub *Arctio*, 1843).—Hoc nomen haud servari potest, cum jam antea sub 2 aliis nominibus descripta est; *L. macrosperma* Wallr. (Linnæa, 1840, p. 639) et *L. nemorosa* Lej. (sub *Arctio*, Fl. Belg. 3, p. 129, 1836). Nomine igitur primum dato *L. nemorosa* (Lej.) Körn. erit appellanda, tanto magis quia etiam apud nos semper in silvis occurrit. De synonymia conf. ceterum Körnicke (Schr. phys.-oekon. Gesellsch, z. Königsberg, 1864, p. 63, 1867, p. 14) et Lange (Bot. Tidskr. v. p. 292). Quid sit *Arctium nemorosum* a Babington (Man. ed 7, p. 197) ab *A. intermedio* (*A. pubens* Bab.) specifice distinctum, conjicere nequeo." [Dr. Lange seems to consider the two plants he formerly separated

only as forms of one, one being the woodland plant, the other of open ground.—A. B.]

"(Tab. 2703). *Scirpus bifolius* Wallr. habitu et rationibus quibusdam biologicis, non autem characteribus e flore fructuque sumtis differt e *S. rufo* Huds., quare hujus subspecies potius quam species distincta esse videtur. In Dania paucis modo locis occurrit et ubique rara esse videtur. Semina matura non legi, quare an constans sit, culturâ probare non potui." [Undoubtedly this has a very different appearance from *Scirpus* (*Blysmus*) *rufus;* the difference seems really only varietal, not subspecific, but that is, of course, a matter of opinion.—A. B.]

Tab. 2791.—"*Zannichellia macrostemon* J. Gay hæc tabula inscripta est. Nomen *Z. palustris* L. Collectivum est, et postquam plures species distinctæ sunt, haud servari potest. Distinctio a. b. J. Gay facta inter formam staminibus brevibus (*brachystemon*) et longioribus (*macrostemon*) secundum observationes a cl. P. Nielsen factas nota haud constante fundata est, cum species macro- et brachystemones promiscue occurrent, quare idem nomen *Z. marinæ* proposuit (Bot. Tidskr. v. p. 204) cujus forma *vulgaris* est hæc nostra, antheris 4-locularibus instructa cum alia forma (*intermedia* Nielsen) antheris 2-locularibus distinguetur."

(Tab. 3008–9).—"Formæ 2 *Plantaginis lanceolatæ* tam inter se quam a speciei typo divergentes in his tabulis repræsentantur, altera (var. *depressa* Rostr.) in insulis faeroeensibus lecta, glabra, foliis latis, scapis crassis, profunde sulcatis, decumbentibus, altera (v. *eriophylla* Dcne.) ad littora Bornholmiæ et alibi obvia, foliis angustioribus dense lanatis, scapis gracilibus distincta."

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# NEW PETALOID MONOCOTYLEDONS FROM CAPE COLONY.

By J. G. Baker, F.R.S., F.L.S.

(Continued from p. 4.)

## Liliaceæ.

### Asparageæ.

**Asparagus Saundersiæ**, n. sp. — Stems slender, sarmentose, woody, terete, stramineous, glabrous; prickles small, spreading, pungent; branchlets spreading or ascending, very slender, acutely angled, not zigzag. Cladodia 3–4-nate, subterete, rigid, ascending, about ½ in. long, rounded on the back, flat or rather channelled on the face. Racemes spreading from the main woody branches, lax, about an inch long; pedicels very slender, solitary, articulated above the middle, the lower ¼ in. long; bracts minute, ovate, white. Perianth 1-12th in. long; segments oblanceolate-oblong, obtuse, spreading horizontally. Stamens nearly as long as the perianth; anthers globose, very minute. Ovary pedicellate; style very short.

Hab. Natal, *Mrs. Katherine Saunders*! Near *A. racemosus* Willd.

**A. myriocladus,** n. sp. — Main stem woody, terete, suberect, many-ribbed; prickles slender, pungent, deflexed; branchlets short, crowded, very slender, strongly angled, simple, ascending. Phyllocladia 3–8-nate, linear, rigid, mucronate, ¼ in. long. Racemes lax, about an inch long, produced from the woody main stems; pedicels 1-12th to 1-8th in. long, articulated at the middle; bracts ovate-lanceolate. Perianth 1-12th in. long; segments obtuse. Stamens nearly as long as the perianth; anthers minute, globose.

Hab. Natal; Inanda, *Wood* 355! Near *A. æthiopicus.*

### ALOINEÆ.

**Kniphofia Northiæ,** n. sp.—Stem produced above the surface of the ground, 2–3 in. diam. Leaves 30–40 in a dense rosette, lanceolate-acuminate, glaucous, broadly channelled down the face, not acutely ribbed on the back, the outer 4–5 ft. long, 5–6 in. broad at the base, tapering gradually to a long point, distinctly serrulate on the margin, the inner leaves of the rosette growing gradually narrower and shorter. Peduncle elongated, above an inch thick. Raceme very dense, above a foot long, 3–4 in. diam.; bracts ovate, scariose, those just below the base of the raceme ⅓–½ in. long; pedicels short; all the lower flowers pale yellow, only the upper flushed towards the tip with red. Perianth cylindrical, an inch long; segments small, ovate. Stamens about as long as the perianth. Style a little exserted.

Hab. Grahamstown. Described from a drawing in the North gallery, and a living plant in the Cactus-house at Kew, presented by Miss North, which has not yet flowered. We are informed by Mr. Tidmarsh that it was discovered by Mr. W. Dugmore. Of the species already known it is most like *K. caulescens* Baker (Bot. Mag. t. 5946), but the leaves are much broader, the perianth much larger, and the stamens not exserted.

**K. modesta,** n. sp.—Leaves linear, rigid, 1½ ft. long, 1-12th to 1-8th in. broad, acutely keeled on the back. Peduncle slender, as long as the leaves; empty bracts lanceolate. Raceme dense, subspicate, subsecund, 3–6 in. long; pedicels very short; bracts lanceolate, ¼–⅓ in. long. Perianth cylindrical, yellow, ⅓ in. long; segments ovate. Anthers oblong, finally just exserted.

Hab. Griqua-land east; sides of Mount Currie, at Koksted, alt. 6000 ft., *Tyson* 1418! Near *K. breviflora* Harv.

**K. Tysoni,** n. sp. — Leaves linear, 3–4 ft. long, ¾ in. broad at the base, tapering gradually to a long point, acutely keeled on the back. Peduncle as long as the leaves. Raceme very dense, ½ ft. long, 2½ in. diam. including the stamens; pedicels very short; bracts oblong, obtuse, ⅙ in. long. Perianth red-yellow, ¾ in. long, ⅛ in. diam. at the throat; segments semiorbicular. Stamens exserted, ¼–⅓ in.

Hab. East Griqua-land, on the Zuurberg, alt. 4000 ft., *Tyson* 1709! Between *K. pumila* and *sarmentosa.*

**Gasteria radulosa,** n. sp.—Acaulescent. Leafy stem 1–1½ in. long. Leaves about 6, distichous, lorate-ensiform, 6–8 in. long, 1½ in. broad, flexible in texture, flat on the face, dull green, ⅙ in.

thick in the middle, rounded to a cusp at the apex, dentate on the edge upwards, the spots of the face crowded, small, whitish, slightly raised. Flowers unknown.

Hab. Described from a living plant in the Kew collection in 1885, received from Berlin. Near *G. subverrucosa* Haw.

**G. transvaalensis**, Hort. De Smet. — Acaulescent. Rosette distichous or slightly oblique. Leafy stem short. Leaves about 8, lorate, dark green, rather glossy, 4–5 in. long, an inch broad, ¼ in. thick in the centre, the face not excavated, the border not thickened, but toothed towards the white horny deltoid-cuspidate apex; spots greenish-white, immersed, aggregated into transverse bands. Flowers unknown.

Hab. Transvaal. Described from a living plant in the Kew collection in 1885. Allied to *G. nigricans* Haw.

**Aloe leptophylla**, N. E. Brown in Herb. Kew. — Stem short, simple, 1½–2 in. diam. below the rosette of leaves. Leaves 12–20, lanceolate, 9–12 in. long, 2–3 in. broad low down, tapering gradually from the middle to the point, ⅙ in. thick in the middle, green or tinged with purple, distinctly lineate with copious linear-oblong whitish blotches; marginal prickles deltoid, ⅛ in. long. Peduncle simple, 1½ ft. long. Raceme dense, capitate, about 3 in. long and broad; pedicels 1–1½ in. long; bracts small, lanceolate-deltoid, acuminate. Perianth 1¼ in. long; segments much shorter than the cylindrical tube. Stamens as long as the perianth.

Hab. Eastern provinces, introduced into cultivation by Cooper about 1860. May be the imperfectly-described *A. tenuifolia* Lam. Encyc. i. 8. It differs from *A. Saponaria* and *A. latifolia* by its thinner very flexible leaves.

**A. Brownii**, n. sp. — Stem short, simple below the rather lax rosette of leaves, 2–3 in. diam. Leaves lanceolate, about a foot and a half long, 3–4 in. broad low down, neither spotted nor striped, ¼ in. thick in the middle, flat on the face in the lower third, narrowed gradually from the middle to the pungent tip, margined with close deltoid-cuspidate brown-tipped prickles ⅙–⅛ in. long. Peduncle stout, simple, above a foot long, with many ovate empty bracts. Raceme dense, simple, 4–8 in. long; pedicels ½–¾ in. long; bracts ovate-oblong, nearly as long as the pedicels. Perianth bright red-yellow, cylindrical, 1–1¼ in. long, cut down very nearly to the base. Stamens slightly exserted. Style exserted ½ in. *A. nobilis* var. *densifolia* Baker in Journ. Linn. Soc. xviii. 172.

Hab. Eastern provinces. Described from a living plant that flowered at Kew in 1885.

**Apicra turgida**, n. sp. — Leafy stem 6–9 in. long, 2–2½ in. diam. (leaves included). Leaves arranged in five spirally-twisted rows, deltoid, an inch long, ¾ in. broad, smooth on the face, scabrous on the margin, quite free from spots or tubercles, the lower spreading, dull green, turgid on the face, rounded on the back, ¼–⅓ in. thick in the middle, the upper pale green, with several indistinct vertical ribs of darker green, flat on the face. Flowers unknown.

Hab. Albany, *Hutton*! Introduced into cultivation in 1872. Near *A. deltoidea* Baker (Bot. Mag. t. 6071).

**Haworthia columnaris**, n. sp. — Leafy stem short. Rosette 3 in. diam. Leaves about 30, multifarious, obovate-cuneate, all ascending, not recurved, $\frac{3}{4}$–1 in. long, $\frac{1}{2}$ in. broad, $\frac{1}{3}$ in. thick, minutely cuspidate, dull green, pellucid towards the apex for a quarter of an inch, with greenish brown vertical lines, the margin furnished with minute lanceolate or lanceolate-deltoid deflexed or spreading pellucid teeth. Peduncle simple, $\frac{1}{2}$ ft. long. Raceme simple, nearly a foot long; lower pedicels short; bracts lanceolate-deltoid, $\frac{1}{4}$–$\frac{1}{3}$ in. long. Perianth $\frac{5}{8}$ in. long; limb half as long as the tube.

Hab. Described from a living plant in the Kew collection that flowered in 1884, received from Messrs. Veitch, of Exeter. Belongs to the group *Denticulatæ*, near *H. affinis* and *bilineata*.

(To be continued.)

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# BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.

By James Britten, F.L.S., and G. S. Boulger, F.L.S.

(Continued from p. 21).

**Gourlie, Robert** (d. 1832?): d. Mendoza, 1832? Collected in Chili. Bot. Misc. iii. 208. *Gourliea* Gillies.

**Gourlie, William** (1815–1856): b. Glasgow, March, 1815; d. Pollockshields, Glasgow, 24th June, 1856. F.L.S., 1855, Pupil of W. J. Hooker and J. H. Balfour. Collected Bristol pl.. especially mosses, fossil pl., &c., and purchased large foreign collections. Proc. Linn. Soc. 1857, xxvii.

**Govan, George** (fl. 1824). M.D. Correspondent of Wallich. 'Nat. Hist. . . . . Himalayan Mts.,' Edin. Journ. Science, iii. 17 (1824). R. S. C. ii. 973; Lasègue, 128. *Hypericum Govanianum* Wall.

**Gowen, James Robert** (fl. 1823). Of Highclere, Newbury. 'Hybrid Amaryllis,' Trans. Hort. Soc. iv. & v. R. S. C. ii. 973. *Govenia* Lindl.

**Græfer, John** (fl. 1789). Botanic Gardener to the King of Naples. 'Descriptive Cat. of . . . . Herbaceous or Perennial Pl.,' 1789; ed. 4, 1804.

**Graham, John** (1805–1839): b. Dumfriesshire, 1805; d. Khandalla, Bombay, 28th May, 1839. 'Catalogue of pl. . . . . in Bombay,' 1839 (posthumous). Pritz. 127; Jacks. 387; Pref. Cat. Bombay Pl. iv.; Gard. Chron. 1841, 23; Hooker & Thomson's 'Flora Indica, i. 53; R. S. C. ii. 977; Lasègue, 433.

**Graham, Maria,** *née* **Dundas**, afterwards **Calcott** [*See* CALCOTT].

**Graham, Robert** (1786–1845): b. Stirling, 7th Dec. 1786; d. Coldoch, Perth, 7th Aug. 1845. M.D., Edin., 1808. F.L.S., 1825. Husband of preceding. Regius Prof. Bot. Glasgow, 1813; Edinburgh, 1818. Pres. Bot. Soc. Edin. 1838. Described Wallich's *Leguminosæ*. Edinb. New Phil. Journ. 1831, 1832; Pritz. 127; Jacks. 234; Trans. Bot. Soc. Edin. 1846; Proc.

Linn. Soc. i. 300; Gard. Chron. 1846, 390; R. S. C. ii. 977. Portr. at Kew.

**Graham, T.** (fl. 1841). 'Outlines of Botany,' 1841, ed. 2, 1848. Jacks. 41.

**Graves, George** (fl. 1777–1834). Of Walworth, Peckham, and Edinburgh. F.L.S., 1812. 'British Grasses,' 1822. 'Hortus Medicus,' 1834. 'Flora Londinensis,' vols. 4, 5. Pritz. 127; Jacks. 552; Friends' Books, i. 862.

**Gray.** Apothecary. Introduced *Pistacia officinarum*, circ. 1570. L'Obel, Adbersaria, 413.

**Gray, Christopher** (fl. 1740–1763). Nurseryman, of Fulham. Introduced various American plants. 'Catalogue,' 1740. Published Catesby's 'Hortus Britano-Americanus,' 1763. Pritz. i. 103; Loudon, 'Arboretum,' 76.

**Gray, Edward Whitaker** (1748–1806): b. 1748; d. British Museum, 27th Dec. 1806. Uncle of S. F. Gray, jun. M.D. Librarian, R.C.P., L.R.C.P., 1773. Keeper of Department of Nat. Hist. & Antiquities, British Museum. A.L.S., 1788. Sec. R.S., 1797. Arranged the Museum on Linnean system. Eng. Bot. 1631; Munk, ii. 298; Rose, Biog. Dict.; Gent. Mag. 77 (1807), i. 90. Portr. by Calcott at R. S.

**Gray, John Edward** (1800–1875); b. Walsall, Stafford, 12th Feb. 1800; d. British Museum, 7th March, 1875. Keeper of the Zoological Department, British Museum, 1840–1875. Assistant from 1824. F.L.S., 1857. F.R.S., 1832. Ph.D., Munich, 1852. Pres. Bot. Soc. Lond., 1838. 'Natural Arrangement of British Plants,' 1821, under the name of his father, S. F. Gray. 'British Water-weeds,' 1864. Pritz. 128; Jacks. 552; 'List of Books . . . .' by Gray, ed. by J. Saunders, 1872; R. S. C. ii. 998; vii. 819; Journ. Bot. 1865, 297; 1872, 374; 1875, 127; Trans. Bot. Soc. Edin. xii. 409; Gard. Chron. 1875, i. 335; 'Portraits of Men of Eminence,' 1863, with photo. portr. Bronze medallion, with Mrs. Gray, at Linn. Soc.

**Gray, Maria Emma,** *née* **Smith** (1787–1876): b. Greenwich Hospital, 1787; d. 9th Dec. 1876; m. 1 (1810), Francis Edward Gray; m. 2 (1826), Dr. John Edward Gray, his second cousin. Conchologist and algologist. Algæ in Cambridge Univ. Mus. Journ. Bot. 1876, 32; Gard. Chron. 1876, ii. 789; 'Athenæum,' 16th Dec. 1876. Bronze medallion at Linn. Soc. *Grayemma* J. E. Gray.

**Gray, Samuel Frederick** (fl. 1760). Father of the following, and brother of Edward Whitaker Gray. Translated Linnæus's 'Philosophia Botanica' for James Lee. R. S. C. ii. 1012. 'Athenæum,' Sept. 1863, p. 368.

**Gray, Samuel Frederick** (fl. 1780–1836). Posthumous son of preceding. Druggist, of Walsall. Afterwards Lecturer on Botany in London. 'Supplement to the Pharmacopœia,' 1818. Editor, 'London Medical Repository,' 1819–1821. 'Natural Arrangement of British Plants,' 1821, mainly the work of his son, J. E. Gray. Pritz. i. 103; Jacks. 552.

**Green, Thomas** (fl. 1816–1820). 'The Universal Herbal,' 1816–20. Jacks. 37.

**Greenwood, Alfred** (fl. 1845–1862). Of Chelmsford. F.B.S.E. Mosses of Chelmsford, Phyt. ii. 384 (1846). R. S. C. iii. 5.

**Gregory, William** (1805?–1858): b. Edinburgh, 1805?; d. Edinburgh, 24th April, 1858. Prof. Chemistry, Edinb. M.D., Edinb., 1828. 'Marine Diatomaceæ,' 1857. Pritz. 128; Jacks. 158; R. S. C. iii. 9; Trans. Bot. Soc. Edinb. vi. 75.

**Greville, Charles Francis** (fl. 1811). V.-P. Royal Soc. Linn. Trans. x. 168. *Grevillea* Br.

**Greville, Robert Kaye** (1794–1866): b. Bishop Auckland, Durham, 13th Dec. 1794; d. Murrayfield, Edinburgh, 4th June, 1866; bur. Dean Cemetery. LL.D., Glasgow, 1824. F.L.S., 1827. 'Scottish Cryptogamic Flora,' 1823–8. 'Flora Edinensis,' 1824. 'Algæ Britannicæ,' 1830. Contrib. to Eng. Bot. 2666. Pritz. 128; Jacks. 553; R. S. C. iii. 12; vii. 836; Journ. Bot. 1866, 238; Trans. Bot. Soc. Edinb. viii. 464; Gard. Chron. 1866, 539. Herbarium at Royal Bot. Gard., Edinburgh. Diatoms in Herb. Mus. Brit.

**Grew, Nehemiah** (1641–1712): b. Atherstone or Mancetter, Warwick, 1641; d. London, 25th March, 1712; bur. Cheshunt. B.A., Camb., 1661. M.D., Leyden, 1716. F.R.S., 1671. Sec. R.S., 1677. F.R.C.P., 1680. 'Anatomy of Vegetables begun,' 1672. 'Anatomy of Plants,' 1684, "opus absolutum et immortale," Sprengel. Pult. i. 337; Rees; Pritz. 129; Jacks. 553; Munk, i. 406; F. L. Colvile, 'Worthies of Warwickshire.' Portr. engr. by R. White, 1700, from painting by the same, formerly at Barber-surgeon's Hall, in 'Cosmologia Safra,' 1701. Another pub. by Dr. Thornton. *Grewia* L.

**Griffin, W.** (fl. 1820). Of South Lambeth. Introduced plants from Brazil, &c. Bot. Reg. 511. *Griffinia* Ker.

**Griffith, John Wynne** (fl. 1783–1855). Of Garn, near Denbigh. F.L.S. Sent Welsh plants to Smith. Communicated lists to Bingley's 'Tour round N. Wales,' see Bot. Guide, 166. Eng. Bot. 440, 1735, &c.; R. S. C. iii. 16. *Griffithia* Br. = *Glyphomitrion.*

**Griffith, William** (1810–1845): b. Ham Common, Surrey, 1810; d. Malacca, 9th Feb. 1845. Assistant-surgeon, Madras, 1832. F.L.S., 1840. In Assam, with M'Clelland and Wallich, 1835; in Bhotan, with Pemberton, 1837-8; in Afghanistan, 1839. Superintendent Bot. Gard. and Prof. Med. Coll. Calcutta, 1842. Pritz. 129; Jacks. 553; R. S. C. iii. 18; Lasègue, 149, 432; Proc. Linn. Soc. i. 239; Annual Report, Royal Asiatic Soc. 1845; Gard. Chron. 1845, 387. Portr. Kew. Plants at Kew. *Griffithia* Wight & Arn.

**Griffiths, Amelia W.** (fl. 1817–1858). Of Torquay. Algologist. Correspondent of Harvey and Greville. "The *facile regina* of British algologists," Harvey. Plants in Blewitt's 'Panorama of Torquay,' 1832. Jacks. 504; Harvey, 'Phycologia,' t. xvi.; Syn. 243; Greville, 'Algæ Brit.' introd. p. vi.; Eng. Bot. 1926. Algæ at Kew. *Griffitsia* Ag.

**Groult, —** (fl. 1800–1804). Of London. "A very assiduous investigator of English plants," Smith. Eng. Bot. 777, 919, 1096, 1326, &c. Sent plants to Smith.

**Guilding, Rev. Lansdowne** (1797?–1833): b. Kingstown, St. Vincent, 1797?; d. St. Vincent, 1833. B.A., Oxon, 1817. F.L.S., 1817. Zoologist. 'Account of the Botanic Gard., St. Vincent,' 1825, with plates. Plants at Kew. Jacks. 450; R. S. C. iii. 76. *Guildingia* Hook. = *Olisbea.*

**Gulliver, George** (1804–1882): b. Banbury, Oxon, 4th June, 1804; d. Canterbury, 17th Nov. 1882. F.R.S. Assistant-surgeon to Horse Guards. 'Catalogue of . . . plants . . . near Banbury,' 1841. 'Notes on Researches in . . . Botany,' 1870; ed. 2, 1880. Wrote on Raphides. Herbarium at Chatham Literary Society. Journ. Bot. 1883, 31; Pritz. 132; Jacks. 554; R. S. C. iii. 84, vii. 865; Druce, Fl. Oxfordsh., 395.

**Gunn, Ronald Campbell** (1808–1881): b. Cape of Good Hope, 1808; d. Launceston, Tasmania, 14th March, 1881. F.L.S., 1850. F.R.S., 1854. In Tasmania from 1830. R. S. C. iii. 87; Journ. Bot. 1881, 192; Proc. Linn. Soc. 1881–2, 63; Lasègue, 283; Hooker, 'Flora Tasmania,' cxxv. Col. chalk portr. at Kew. *Gunnia*, Ldl.

**Gutch, John Wheeley Gough** (d. 1862). Of Swansea. Queen's messenger. F.L.S., 1848. 'List of Swansea Pl.,' Phyt. i. (1844), 104, &c. R. S. C. iii. 95.

**Hailstone, Samuel** (1768?–1851); d. 26th Dec. 1851. Of Horton Hall, Bradford. F.L.S., 1801. Contrib. to Eng. Bot. (1035, 2737, &c.). Appendix to Whitaker's Hist. Craven. Baines, Fl. Yorks., preface. Proc. Linn. Soc. ii. 189.

**Hales, Rev. Stephen** (1677–1761): b. Bekesbourne, Canterbury, 7th Sept. 1677; d. Teddington, Middlesex, 4th Jan. 1761; bur. Teddington. B.A., Camb., 1699. M.A., 1703. B.D., 1711. B.D., Oxon, 1731. D.D., 1733. Rector of Teddington, 1710. Clerk of Closet to Princess of Wales. 'Vegetable Staticks,' 1727. Pritz. 133; Jacks. 67; Rees; Gard. Chron. 1877, i. 16, with portr.; 'Annual Register,' 1765, with portr. Monument in Westminster Abbey. Portr. by F. Coates, R.A., engr. by Hopwood for Dr. Thornton. *Halesia* Browne = *Guettarda* L. *Halesia* Ellis & L.

**Hall, Colonel** (fl. 1831). Collected with Jameson in Quito. Lasègue, 472.

**Hall, Agnes C.** (fl. 1802). 'Elements of Botany,' 1802. Pritz. ed. 1, 108; Jacks. 35.

**Hall, Richard** (fl. 1808). M.D. 'Irritability of Vegetables.' R. S. C. iii. 139.

**Hall, Thomas B.** (fl. 1839). 'Flora of Liverpool,' 1839. Pritz. 134; Jacks. 255.

**Halle, Hughes R. P. Fraser** (fl. 1842–1869). 'Letters, Historical and Botanical,' 1851. Pritz. 134; Jacks. 251.

**Halley, Edmund** (1656–1742): b. Haggerston, 29th Oct. 1656; d. Greenwich, 14th Jan. 1742; bur. Lee, Kent. Astronomer and

Mathematician. Capt. R.N. M.A., Oxon, 1678. LL.D., 1703. F.R.S., 1678; Sec., 1713. Savilian Prof. Geometry, 1703. Astronomer-Royal, 1720. Sent plants from Trinidad to Petiver, 1700. Mus. Pet. pp. 37, 77, 80; Chalmers.

**Halstead, William** (fl. 1702). Major. Brought Carolina plants to Petiver, 1702. Mus. Pet. 96; Hb. Sloane, 158.

**Hambrough, Albert John** (1820?–1861): b. 1820?; d. London, 6th June, 1861. Of Steephill Castle, I. of W. F.L.S., 1856. F.B.S.E., 1839. Contributed to Bromfield's 'Flora Vectensis.' Seaweeds in Venables, 'I. of Wight,' 1860. Phyt. v. 194; Trans. Bot. Soc. Edinb. vii. 202; Proc. Linn. Soc. 1862, xc. R. S. C. iii. 145.

**Hamilton, Charles** (fl. 1785). Lieutenant. 'Description of Mahwah Tree,' Asiatic Researches, i. 300. Dryand. iii. 282.

**Hamilton, Claudius** (fl. 1699). Gave Barbadoes plants to Petiver. Mus. Pet. no. 674.

**Hamilton, Francis,** *née* **Buchanan** (1762–1829): b. Branziet, Callander, Perth, 15th Feb. 1762; d. 15th June, 1829. M.D., Edinb., 1783. A.L.S., 1788. F.L.S., 1816. F.R.S. Surgeon E. I. C., 1794. Superintendent, Bot. Gard., Calcutta, 1814–15. Contributed mosses to Eng. Bot., 1590, &c. Plants at Kew and Brit. Mus. Jacks. 383; R. S. C. i. 692; Lasègue, 138; Smith Lett. ii. 85; Dict. Nat. Biog. vii. 186; 'Men whom India has known,' 1871. *Buchanania* Sm. = *Colebrookea* Sm. *Buchanania* Spreng.

**Hamilton, Rev. James** (1814–1867); b. Paisley, N. B., 27th Nov. 1814; d. Euston Sq., London, 24th Nov. 1867. M.A., Glasgow. D.D., Edinb. Pastor of Regent Sq. Church, 1841. F.L.S., 1848. Wrote bot. in Fairbairn's 'Dict. of the Bible.' Proc. Linn. Soc. 1867–8, civ.; Trans. Bot. Soc. Edinb. ix. 269; Vapereau; 'Men of the Time,' ed. 6.

**Hamilton, William** (fl. 1825–1854). M.B. 'Prodromus pl. Indiæ occidentalis,' 1825. Contributed to Pharm. Journ. Pritz. 134; Jacks. 368; R. S. C. iii. 147.

(To be continued.)

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## SHORT NOTES.

JUNCUS GERARDI Lois.—A pretty little rush, allied to this species, has for some years been under observation. It grows plentifully in a brackish marsh on sand by the Channel shore near Berrow, between Brean and Burnham; and its interest depends on characters linking it with *J. compressus* Jacq. This summer (1887) I have been enabled to study the latter plant from specimens obtained near Stanton Drew, and having also gathered typical *Gerardi* on the coast of Dorset, could determine the position of the Berrow rush with some confidence. *J. Gerardi* is a salt-marsh plant, distinguished by a far-creeping rhizome, panicle rather close, exceeding its bract, and capsule narrow, strongly mucronate, about equalling the perianth. On the other hand, *J. compressus* is found only inland, has a tufted rhizome, a rather loose panicle falling short of its bract, and differs above all in the larger, rounder, and more obtuse capsule, which distinctly exceeds the perianth. The plant under notice has the rhizome of *Gerardi*, and, unless hampered by other vegetation, creeps straight ahead in a direct line, putting up stems at regular remote intervals. It agrees with that species also in the comparative length of the lower bract. There the similarity ends; the panicle is loose, with separately-stalked flowers; the perianth-segments fall short of the capsule, sometimes by as much as one-half; the capsule is never acuminate, but subglobular, obtuse, and mucronate, of a beautiful light-brown colour, polished and shining when fresh, becoming puckered and wrinkled on drying. Dr. Buchenau, the chief authority on *Juncus*, reports on specimens sent to him: "Forma intermedia *J. compressi* et *J. Gerardi*. Antheræ filamentis circa 2½-plo longiores. Stilus longus. Fructus perigonio circa dimidio longiores." The Berrow rush, therefore, is a connecting-link between the two species mentioned; and although such a form is extremely rare, and perhaps may now have been observed in Britain for the first time, yet its occurrence decidedly supports the view of those botanists who consider these plants to be resolvable into one super-species through intermediate states.—J. W. White (in Proc. Bristol Nat. Soc. v. iii. 233).

Daboecia.—In Prof. Babington's paper on Botanical Nomenclature in the December number of the 'Journal of Botany,' there is one item which seems to need correction. He asserts that David Don failed to correct a printer's error when founding the genus *Daboecia;* but a review of the history of its names will show that this supposition is not justified by facts. Linnæus, in the first edition of his 'Species Plantarum,' under *Erica*, has the species *E. Daboeci*, giving as a synonym *Erica s. Dabeoci hibernis* of Ray, Hist. pl. iii, Dendrol. 98. but mis-spelling it *Dabeci;* no change was made until the twelfth edition of the 'Systema,' when our plant was transferred to *Andromeda*. It was on this foundation that Don made his genus *Daboecia* in the 'Edinburgh Philosophical Journal' (July, 1834), 160; any mistake in the spelling must be attributed to Linnæus, who successively wrote *Dabeci* and *Daboeci*, retaining the latter spelling, and we are therefore not warranted in ascribing carelessness in proof-reading to Don, who clearly meant the name to stand as he wrote it. For my own part, I know nothing of S. Dabeoc, save in connection with this plant; and I should be glad if the Editor, who has given so much attention to the naming of our indigenous vegetation, could enlighten our ignorance of this Celtic Saint.—B. Daydon Jackson.

Ranunculus Baudotii in Worcestershire.—In the summer of 1883 I met with a Batrachian, which I supposed to be some variety of *Ranunculus peltatus*, growing in a small pond at Madresfield, near Malvern. I did not again gather it until 1886, when I saw it in abundance in the Stews at Madresfield Court, about one-third of a mile distant from the pond, but, as I afterwards found, connected with it by a very small stream. Mr. James Groves kindly examined for me both dried and fresh specimens (see Bot. Ex. Club. Rep. 1887), and considers the plant an inland form of *R. Baudotii.*—Richard F. Towndrow.

Radula voluta in Scotland.—In July, 1888, I gathered *Radula voluta* Taylor, in the Ness Glen, Dalmellington, Ayrshire. This is, as far as I am aware, the first record of this hepatic for Scotland. Along with it was *Plagiochila tridenticulata* Tayl.—Jas. McAndrew.

Flora of Beinn Laoigh.—Mr. Druce's description of this mountain (Journ. Bot. 1888, p. 9) is only too graphic. I gave, in No. 223 of 'Science Gossip,' a list of the plants I saw in the district, the result of which is that all the rarer plants have been nearly exterminated, and even Mr. Druce has had a difficulty in seeing some of the species that used to grow in profusion. *Cystopteris montana*, for instance, he does not appear to have seen on the Perthshire side, yet it used to be a very common plant. Of *Arabis petræa* Lamk., both the nearly-entire and the much-cut-leaved forms occur on the mountain, and the same remark applies to the Cam Creay range of hills near Killin; the former in moist and shady situations, the latter on dry and exposed places. *Drosera obovata* W. & K. used to grow plentifully near to the stream about one mile below Coninish Farm, and here and there on the moorland from the Farm-house up towards Beinn Chuirn. I never saw either *D. obovata* or *D. intermedia* growing far from *D. anglica* and *D. rotundifolia*. *Dryas octopetala* L. used to be most abundant on the most eastern rocks of Stob Garbh, and it was among these rocks that *Pyrola rotundifolia* and *P. secunda* used to flower best. Mr. A. Bennett would not admit *Armeria planifolia* Syme. I have sent him a much broader-leaved form from Ben Lawers, but I have not had his opinion yet. I am certain we have not got this form on our Scotch mountains. *Carex vaginata* Tausch. is not rare on the mountain, and the form *borealis* as figured by Andersson is also to be found here and there, the further up the more typical, but nowhere so characteristic as that seen in Aberdeenshire and Forfarshire. I am surprised that a botanist in Mr. Druce's position did not know of my work, and that of many others after me in this district. I should have been only too glad to have given him any information in my power, and would have liked his opinion on many plants growing in the district.—P. Ewing.

Flora of the Isle of Wight. — I have arranged to publish a Flora of the Isle of Wight, and I shall be very glad to receive any notes with regard to the matter. I have adopted the drainage divisions given by Mr. Townsend in his 'Flora of Hampshire,' and records of plants found in the district will be acceptable.—Frederic Stratton.

## EXTRACTS FROM REPORT OF THE BOTANICAL EXCHANGE CLUB FOR 1887.

EDITED BY GEORGE NICHOLSON, A.L.S.

*Viola Curtisii* Forst., vars. On the sandhills at Southshore, Blackpool, W. Lancashire, 2nd June, 1887. Sent to show the great extremes in habit and colouring. In the early summer this plant completely covers the sandhills, and all colours, cream, yellow, pale lavender, light and dark blue, and purple, grow intermixed. In most other stations where I have seen this plant it affects flat, damp, sandy areas, and usually presents a uniformity of habit and colour. At Southshore, St. Anne's, and Lytham, all on the West Lancashire coast, it is quite as frequent on the dry sides of the sandhills as in their hollows.—CHARLES BAILEY. I have failed to get distinctive names, or even definite opinions, on these Violas from the referees to whom they were sent.—G. N.

*Stellaria umbrosa* Opiz. Two forms; one glabrous, and the other with calyces and pedicels hairy. Tortworth, West Gloucestershire. This may be a new record for Vice-Co. 34. I have collected a series of specimens to illustrate a point which has already been mentioned here and there, namely, that this plant is commonly glabrous, but that there is also a frequent form of it having the pedicels and calyces hairy. The species is not rare either in West Gloucester or North Somerset, and one can readily find both its varieties or states intermingled on the same hedgebank. I have carefully examined and compared these plants, not forgetting the ripe seeds, and am satisfied that, beyond the character named, there is no structural difference whatever between them.—JAS. WALTER WHITE.

*Anthyllis Vulneraria* L. Near Stouting, E. Kent, 3rd July, 1887. I send a variety of this plant, in which the stem is very hispid with spreading hairs. Dr. Lange names it var. *hirsutissima* DC., but as that plant is described as having red flowers, I suppose Dr. Lange would include under that name also the var. *Allionii* DC., which differs only in having yellow flowers, and which, strictly, seems to be the name of the plant. This form is certainly not the common one of our chalk hills, which usually has the stem, &c., subglabrous, or with a little adpressed hair. I have met with the variety in one locality in Surrey, as well as about Stouting, in E. Kent, whence I now send examples, and where it seems to be abundant.—W. H. BEEBY.

*Rubus cordifolius* W. & N. Overhanging a brook near Harracles Mill, Rudyard, Staffordshire, 8th September, 1887. A new county record, detected by Mr. J. G. Baker. In a walk of about six miles, between Rudyard and Rushton, eight other *Rubi*, not previously recorded for Co. 39, were noted, viz.: *Lindleianus*, *villicaulis*, *umbrosus*, *Sprengelii*, *Borreri*, *Radula*, *infestus*, and *tuberculatus* (*dumetorum*); and the tract traversed was quite as remarkable for the absence of forms which might have been expected to have occurred, *R. discolor* for instance. We also collected in the same district, and county, the following species, not recorded in 'Topographical Botany,' ed. 2, viz.: *Ranunculus peltatus*, *Potentilla procumbens*, *Epilobium* *obscurum*, *Galium elongatum*, *Valeriana Mikanii*, *Arcticum nemorosum*, *Veronica Buxbaumii*, *Atriplex erecta*, *Potamogeton natans*, and *Sparganium neglectum*.—CHARLES BAILEY.

*R. nemoralis* Muell. (*R. Muenteri* Marss.), fide C. C. Babington. Quakers' Wood, near York. Petals white, stamens and pistils white. August, 1887. Professor Babington says of this, that it is what he should have called a state of his "*macrophyllus, glabratus*," but thinks it is as above.—GEO. WEBSTER. "Group of *rhamnifolius*, near *R. cardiophyllus* Lefv. & Muell."—W. O. Focke. "Is most certainly the old *umbrosus* of Babington, and *carpinifolius* of Bloxam. It is a Bramble I know well, as it occurs about Plymouth in two forms, the larger well represented by Mr. Webster's specimens, being found in many places in the enclosed country; and a smaller form growing on the downs, or wider and more open places. I suppose these would now be placed by Babington under *Maassii* or *Muenteri*. The terminal leaflet of Mr. Webster's plant seems most like that of *Muenteri*, as described by Babington in Journ. Bot. for last year, p. 333."—T. R. A. Briggs.

*R. melanoxylon* Müll. & Wirtg. Branksome, Dorset; rough bushy ground, in good quantity, 29th July, 1887. This is the plant described by Prof. Babington in Journ. Bot. 1887, pp. 21, 22. I have found it this year in several widely-separated localities near East Dorset, and also near Brockenhurst, in the New Forest, S. Hants. It will be of interest to several members of the Club if I add that the *R. plinthostylus* described by the Professor in the same paper (p. 22) is the beautiful little bramble which I sent for distribution as a small *Koehleri* form from Minster Valley, E. Cornwall, in 1885.—W. MOYLE ROGERS. New records for Vice-counties 9 and 11.

*R. chlorothyrsus* Focke. Shirley, Derbyshire, September, 1887. Only observed in one lane. I shall be glad to learn whether this is agreed to as the true *chlorothyrsus*, as it differs from specimens bearing the same name which I have received from the Continent.—W. R. LINTON. "*R. chlorothyrsus* Focke, or very near to it."—W. O. Focke. First record for Britain.

*R. gratus* Focke. Shirley, Derbyshire, July, 1887. Only a single bush has been observed, occurring in a swampy and open part of Shirley Wood, among bushes of *R. carpinifolius* W. & N. and *R. fissus* Lindl.—W. R. LINTON. Mousehold Heath, Norfolk, 22nd August and 30th September, 1887.—E. F. LINTON. So named by Dr. Focke. New county record.

*R. Maassii* Focke = *R. umbrosus* (Bab. Man.). Ansley, Warwickshire, 20th August, 1887. As this is one of the commonest British brambles, I have only sent a limited supply, assuming that it is only required as a voucher for correctness in nomenclature.—J. E. BAGNALL. This plant, Mr. Baker thinks, should be called *R. polyanthemos* Lindeb. It is undoubtedly the *umbrosus* Bab., *carpinifolius* Blox., and *R. Maassii* Lond. Cat., but differs totally from specimens named *R. Maassii* for Mr. Baker by Dr. Focke, which is the *R. cordifolius* of English authors.—G. N.

*R. Maassii* Focke. St. Paul's Cray Common, Kent, 1887.—

Eyre de Crespigny. New record for Vice-county 16. Roadside, near Bodorgan Station, Anglesey, August, 1887.—J. E. Griffith. Is the plant so named by Dr. Focke for Mr. Baker.

*R. foliosus* Weihe. Ansley Coalfield, Warwickshire, 20th August, 1887. This locality was marked on my ordnance maps by the Rev. A. Bloxam. It is that locality recorded in the 3rd edition of 'English Botany,' under the name of Annesley Coalfield, and by Prof. Babington, in his notes on *Rubi*, under the name of Bunnesley Coalfield. This plant, in the above locality, and in and about the Hartshill stone quarries, forms a special feature in the flora. It also occurs in the Hartshill Hayes, and near Moncetter, all of which stations are in the basin of the River Anker, and on the coal measures of Warwickshire; but I have never found it in any other part of this county. It appears to me to differ materially from the Devonshire plant.—J. E. Bagnall.

*R. Purchasii* Blox. Wood, Howle Hill, Herefordshire, 18th July, 1887.—Augustin Ley. "Correct, I think."—W. O. Focke. "What is most undoubtedly the same as this occurs in many places in Devon and Cornwall, and I am delighted at being able, through the receipt of the specimen from Howle Hill, to get a name for it. I had thought it near *R. Kœhleri* Weihe, and *cavatifolius* P. J. Müll. The sharply-pointed leaflets, with formal outline, and the light yellowish-green hue of the plant generally, are striking features. I have specimens from Bircham and Shalaford, Egg Buckland; Passage Wood, Revelstoke; and Caton, all in S. Devon; Anthony; Sheviocke; and the Camel Valley."—T. R. A. Briggs. New record for Vice-county 3.

*R. cæsius* L., hybrid with *R. Idæus*. Between Hipley Rock and Longcliff Wharf, on the road from Ashbourne to Matlock, Derbyshire, 11th July, 1887. I send a fair supply of this, gathered in June last. I add a few more, gathered in the end of autumn, showing that the plant does not fruit, and which may be sent out with the others, as far as they will go. The stems of this curious plant are as erect as those of the raspberry, but when they touch a loose wall of stones they send out long shoots, creeping amongst the stones, just as *R. cæsius* would do.—W. H. Purchas. "Correct."—W. O. Focke.

*Rosa Ripartii* Déségl. Barnes Common, Surrey, 30th June, 1886. —W. R. Linton. This is intermediate between the plant reported by me in Journ. Bot. under above name, and ordinary *R. spinosissima* L. Prof. Crépin writes: "It is not var. *Ripartii*, which is distinguished by its compound glandular teeth, and by glands on the lower surface of the leaflets. Mr. Linton's plant is scarcely double-toothed; it is a variation from typical *R. spinosissima*."

*R. agrestis* Savi (*R. sepium* Thuill). Wytham, Berks; Beckley, Oxon. Rev. W. Moyle Rogers discovered this plant in Oxon, a single bush occurring in a field lately devoted to foxes, and now assuming the aspect of a bushy common. In Wytham, only one bush, so far as I could find, occurred, but this was a much better and more spreading plant than the Beckley one. The Berks *Rosa* differs slightly from the Oxon, and neither appears to be quite typical *sepium*, although Mr. Baker has passed both.—G. CLARIDGE DRUCE. New county record for Oxford.

*R. tomentosa* Smith, var. *uncinata* F. Arnold Lees, in 'Report of Botanical Record Club Report for 1884, 1885, and 1886,' p. 117. Low bushes on a mountain side, above Llys-y-wynt, near Llanfairfechan; alt. about 600 ft., 25th September, 1884. "A very striking plant, with prickles very unlike those of *tomentosa;* it seems to connect this with *Borreri* or *Bakeri*."—T. R. Archer Briggs *in litt.*—CHARLES BAILEY. Prof. Crépin writes concerning this: "Very curious, on account of the form of its prickles. It remains to be seen whether we have to deal with an individual plant, or whether there are several bushes. [Mr. Bailey's ticket says *low bushes*, so this part of Prof. Crépin's note is answered.] Mr. Bailey would do well to gather this curious form in flower. It belongs to the group of which my *R. pseudo-cuspidatus* (cnfr. 'Primitiæ Monographiæ Rosarum,' p. 753) makes a part. The foregoing observations are written in case we really have to deal with a variety of *R. tomentosa*, but does the plant actually belong to that species? May it not rather be a form of *R. coriifolia* belonging to the group of *R. cinerea* Rap. (cnfr. Prim. Mon. Ros. p. 719)? It is possible, and even quite probable. You sent me (No. 106) a rose from Railway Bank, Niddry, near Edinburgh, 29th July, 1881, which comes near Mr. Bailey's. The forms of *R. coriifolia* with glandular leaves are rare, and not yet understood. Your No. 106, and Mr. Bailey's plant, if they do belong to *R. coriifolia*, constitute varieties new to the British Flora. You can, I think, put on the ticket, 'veris *R. coriifoliæ* Fries, var. prox. *R. cinereæ* Rap.'" "I revisited the locality on July 7th, 1888, and found this rose fairly abundant, and constant. The flowers were just opening, and were of a full pink, rather lighter in shade than *R. tomentosa.* The petals were somewhat unregular in shape, crumpled at the edge, and generally the notch was ill-defined. The uncination exhibited considerable variation between plant and plant, and even on the same plant; the lower parts of the flowering branches generally produced the *canina* type of hooked prickles, with the enlarged base; the prickles of the upper portions of the branches were far from uniform, some being straight, and occasionally projecting forward, while others were slightly curved, as in *tomentosa*, and so on into a distinctly-hooked form, both with and without a broadened base. There were about fifty low bushes scattered over a space of about two or three hundred yards of a marshy portion of the mountain-side. I collected sufficient flowering specimens for the members, and have asked Mr. J. E. Griffith, who was good enough to accompany me to the station, to collect fruiting specimens, in the autumn, for the Club. I sent three selected specimens to Prof. Crépin, who has been good enough to report upon them as follows: 'I have just returned from a journey in the Alps, and found your fine specimens of *Rosa tomentosa* Sm., var. *uncinata*, awaiting me. After having examined these with much attention, I am led to think that we have in them a form of *R. tomentosa.* As you very justly say, the form of the prickles varies much on the stems, where they are sometimes of typical form (slightly arcuate), and sometimes of a more or less uncinate form, recalling those of *R. canina*. In the presence of this last fact,—which is at least rare in *R. tomentosa*,—we must seek with care for the *practical* characters which permit us to distinguish with certainty this aberrant form (var. *uncinata*) of *Rosa tomentosa* from certain glandular-leaved varieties of *R. coriifolia*. In the distribution which will be made of this variety *uncinata*, it would be well if each portion were represented by two specimens: one with the caulinary prickles hooked, and the other with the caulinary prickles slightly arcuate. In the three specimens which you have sent me, the middle leaves of the flowering branchlets are pretty often 9-foliate, which is rare in *R. tomentosa*.' "—Charles Bailey.

*Aster Novi-Belgii* L. Probably an escape from cultivation. It has now established itself in a wet place, frequently overflowed, by the side of the tidal New Bedford River. This plant has not spread by seed at present, but increases by its abundantly-produced stolons. From the single patch or cluster of stems some hundreds of flowering shoots were produced last autumn. The locality seems thoroughly suited to the requirements of the plant, and it will be a matter of great interest to see whether, in so favourable a situation, seedlings will be able to spring up. Mr. Arthur Bennett kindly named this plant, and compared it with the fine specimens at Kew. — Alfred Fryer.

*Pyrethrum corymbosum* W. On the quay, Bangor, where it has been established eight or ten years, 20th August, 1887. — J. E. Griffith. "I named this plant for Mr. Griffith with some hesitation, as it has a much more condensed inflorescence than the ordinary continental species. It is the stunted inflorescence, and the absence of the ray florets, which have led to its being passed over as *Tanacetum vulgare*. As far as I know, it has not previously been recorded amongst aliens in Britain."—Charles Bailey.

*Melampyrum pratense* L., *hians* Druce. By the Findhorn side, near Logie, Nairn, 95. The only form noticed in this locality, where it was very abundant. The flowers, which are spoiled in drying, are of a beautiful golden-yellow, even to the tube. The bracts are but slightly toothed, the capsule frequently suberect, and the flowers assume a much more erect position than is usual in *pratense* forms. The flowers were of the exact size of those of var. *montanum* (Johnst.), which was the prevailing moorland form of Easterness. The corolla is not closed. At first I was inclined to refer this to the var. *luteum* Blytt, but Rev. F. Wood informs me that *luteum* has very toothed bracts, and numerous whorls of flowers. It is a common plant of the birch zone, in Norway. In Britain, *hians* has now been reported from Wigton, Northumberland, Cumberland, Westmoreland, and Nairn.—G. Claridge Druce.

*Mentha sylvestris* L., *nemorosa*. River-bank, Whitney, Herefordshire, 7th August, 1887.—Augustin Ley. "The observations on *M. pubescens* (below) apply to this plant. Willdenow's description applies equally to several different forms, and, notwithstanding, does not fit in any way the specimen sent me under the name of *M. nemorosa*. It is a very remarkable plant, and certainly is worthy of a name. It is not described in any work which I possess, and does not occur in the numerous forms which have been sent me from France, Switzerland, and Savoy. I hope that you will permit me to dedicate it to you in giving it the name of *Mentha Nicholsoniana* Str. I add here the description which I have made of it:—'*Mentha Nicholsoniana.* Stem tomentose, erect, branching. Leaves with the veins disposed in a network, tomentose and greyish below, green above, and covered with very short hairs, which give them a mealy appearance; all distinctly petiolate, oval-oblong, much narrowed at their apex, and subcordate at their base; those of the primary axis deeply dentate, with unequal apiculate teeth at unequal distances; those of the branches less deeply dentate, with equal teeth, more or less remote. Flowering spikes cylindrical, pretty short, obtuse, and interrupted at their base. Bracts very long, setaceous, and plumose. Calyx hairy, with long subulate teeth. Corolla small. Stamens included. This species has certain relations with *Mentha Eisensteiniana* Opiz. (Naturalientausch, p. 301, No. 131).'"—L'Abbé Ch. A. Strail.

*M. pubescens* Willd. Hort. Croydon, 1887.—A. Bennett. "The majority of the older botanists mention but a very small number of mints, and their descriptions are incomplete. Only a few characters were indicated. Hence it is impossible to say whether or not Willdenow had your plant in view when he gave the name, for his description equally applies to several other very dissimilar plants. In Malinvaud's 'Menthæ Exsiccatæ,' and in the three editions of Wirtgen's 'Mentharum Rhenanarum,' there are, under the name above given, specimens of several quite distinct forms. Besides, the descriptions of Boreau (Flore du Centre de la France), of Lloyd (Flore de l'Ouest), and of Reichenbach, do not apply to one and the same species. If I had found your mint in Belgium, I should certainly have given it another name, and should have placed it close to *M. nepetoides* Lej., on account of the form of its inflorescence."—L'Abbé Ch. A. Strail.

*Ceratophyllum aquaticum* "Wats. in Lond. Cat. ed. 3"; Syme, E. B., ed. 3, vol. viii., pl. 1266–7. This is the form I recorded as *C. apiculatum* Chamisso, in Journ. Bot. vol. xxv., p. 282. The specimens on which I founded that record had no spines at the base, but two minute tubercles in their place. Afterwards, on gathering a large series of examples, I found, on the same branch, fruits with (1) no spines at the base, (2) with two tubercles, (3) with one spine, (4) with two spines, and (5) with a winged spine. As all these varieties in the fruit occurred in apparently full-grown examples, and as the absence of spines seemed in no wise to depend upon the maturity of the fruit, I am induced to believe that our fenland plant is better placed under Mr. Watson's aggregate *C. aquaticum.* Possibly all Chamisso's "species," or "subspecies," have no substantial existence in nature, but may be, like our fenland varieties, *states* of one plant. Prof. Babington names our fenland plant *C. demersum* L., a name which may fairly be given to its usual state; but, looking at habit and foliage alone, we certainly have a plant that is well described and figured in E. B., ed. 3, pl. 1267, as *C. submersum*. Also, in some seasons and situations, the fruit has neither spines nor tubercles. The style, too, is variable in length. Perhaps members will be induced to examine *Ceratophylla* in their own neighbourhoods.—ALFRED FRYER.

*Luzula maxima* DC., var. *gracilis* Rostrup. Top of the Sneug (alt. 1400 ft.), Foula, Shetland, 25th August, 1887. I send a few specimens from this locality. The very exposed situation in which the plant grows here, combined with late season of gathering, causes the specimens to be somewhat poor. A few, however, retained the flexuous or drooping peduncles which are one of the characteristics of the variety.—W. H. BEEBY.

*Sparganium neglectum* Beeby. Growing with *Sparganium ramosum* Curtis, in a ditch below the Causeway Mill, between Gumfreston and Hollow-ways, Tenby, 3rd and 5th October, 1887. Fruits of *S. neglectum* also sent from ditches in the Penally Burrows, near Tenby, 5th October, 1887.—CHARLES BAILEY. "The plants are rightly named, but the separate packets contain fruits of *ramosum* and *neglectum* mixed."—W. H. Beeby. New county record.

*Potamogeton fluitans* Roth. Cultivated plants from Hunts, Co. 31, 28th July, 1887. The poor condition of the plant sent is due to none having been gathered until all hope of obtaining fruit was gone. Some were picked up in a withered state after the weed-cutters, and the others were gathered from a rapidly drying-up pond. After this pond became quite dry, the already-formed foliaged branches of *P. fluitans* died away, and the surface of the mud soon became studded with the small tufted shoots of the *land-form*, which this species produces as freely as *P. natans* does. This state of the plant was also left ungathered, with the hope of preserving the vigour of the rootstock unimpaired for the production of fruit next season. These subaërial shoots survive throughout the hot, dry summer, and grow until killed by the frosts of late autumn. This species seems dying out in the fens, probably through the frequency with which the drains are cleared of weeds. Hence, too, the plants are cut down before they have time to ripen their fruit, which seems to set freely in natural stations. On the other hand, though cultivated specimens grow into extraordinary vigour, they show no tendency to flower at present. Our plant has affinities with *P. natans* on the one hand, and with the coriaceous-leaved forms of the *lucens*-group on the other.—ALFRED FRYER.

*P. flabellatus* Bab. A splendid series of this, distributed by Mr. Alfred Fryer, in sets of three, viz.:—839. Drain by Fortrey Hall Farm, Welches Dam, 12th Aug. 1887; 840. Same locality, 22nd Aug. 1888; 876. The New Bedford River, 15th July, 1887; all in Cambridgeshire, Co. 29. "The broader-leaved forms from the Ouse and the New Bedford River agree well with Prof. Babington's typical plant; the finer-leaved forms from Welches Dam are towards the *P.* '*scoparius*' of British authors. The Professor has kindly examined all my gatherings for some seasons past, and considers all the plants now sent as belonging to his *P. flabellatus*. I have carefully watched these forms for four years, and have satisfied myself, by the habit of growth and foliage, as well as by the fruit, that these plants cannot come under *P. pectinatus*, as at present restricted by Prof. Babington. Occasionally, but not constantly, all these *flabellatus* forms produce broad, flat leaves at *all seasons of the year* in our fenland waters; I think such leaves will only be found constantly in situations where the plant is unable to perfect its fruit. In cultivation, some shoots from the same rootstock produce them, others do not, and they vary in abundance from season to season. Hence we ought not to attach too much importance to their presence in distinguishing between *flabellatus* and *pectinatus*, but look chiefly to the differences between the fruit, on which Prof. Babington founded his species."—ALFRED FRYER.

*Festuca ovina* L., var. *tenuifolia* Syme (1873) = var. *capillata* Hack. (Mon. Fest, 1882). Hedge Court, Surrey, 1887. Prof. Hackel confirms the name as well as the above synonym. The more recent varietal name has been adopted in Lond. Cat. ed. 8, but according to Hackel's own showing (*l. c.*, p. 85), both of these names must give way to *F. ovina*, var *paludosa* Gaud., Fl. Helv. i. (1828).—W. H. BEEBY.

*Bromus erectus* Huds., *villosus* Bab. Chesterton, Warwickshire, July, 1887.—H. BROMWICH. "The spikelets being very shortly hairy, I doubt whether this be the form called so by Babington. Surely it is not *B. erectus*, v. *villosus* Doell, Flora d. Grossherz., Baden (which perhaps precedes Babington). If you choose to give a proper name to it, I should call it *B. erectus*, v. *subvillosus* Regel et Tilling, Fl. Ajan, p. 126 (1858)."—E. HACKEL.

## NOTICES OF BOOKS.

*Monographische Übersicht über die Arten der Gattung Primula.* Von Dr. FERDINAND PAX. Leipzig, Engelmann. 8vo, pp. 118.

THE literature of the genus *Primula* is so widely scattered as to be accessible to those only having such facilities as are offered by one of our representative botanical libraries. Owing partly to this, the general nomenclature of the genus has long been in a very unsatisfactory condition. The impetus given to this cultivation by the late conference held at South Kensington, brought into prominence the demand for a complete monograph, and this has been supplied by Dr. Ferdinand Pax, of Breslau, who has given many years' study to the subject. He has examined the chief herbaria in Europe; and, although his conclusions may not altogether meet with the views of botanists on this side of the Channel, they merit the careful attention of all workers at the genus.

The book begins with a history of the genus from the time of Dodonæus and Clusius, 1583, down to the present, with full references to every known paper on Primulas between these dates, including structure, morphology, &c. In addition to the history of the genus, chapters are devoted to the geographical distribution of *Primula*, but unfortunately for the general English reader, this portion is in Dr. Pax's mother-tongue, and a closed book to the general cultivator. By means of keys, constructed on a new and very ingenious system, the position of a species or a genus in the natural order being seen at a glance. The European hybrids will be found rather complicated by the uninitiated, owing to so much intercrossing said to having taken place between the species, which can only be decided after long and careful study of the living plants.

Dr. Pax differs most from the English botanist in the definition of species; his views of the *officinalis* section, however, nearly coincide with ours, and we are glad to see that he does not believe in the endless hybrids said to be derived from these common British plants, *elatior*, *officinalis*, and *vulgaris*, the greater number of which he properly places as synonyms or mere varieties. The results of H. C. Watson and Hofmann in crossing these plants are very interesting: the former, it is stated, raised *elatior*, *acaulis*, and *officinalis* from the same seed, and Hofmann is said to have changed *P. elatior* into *P. officinalis* in six generations; but here Dr. Pax cautiously observes that these experiments might not prove good in the face of a strict criticism.

The *farinosa* section is defined on the old plan, with the exception of a few regarded in this country as varieties being claimed as species, and a few, such as *P. lepida* Duby, being placed as varieties of *P. farinosa*. The greatest change, however, is in the *nivales*. Dr. Pax observes that amongst the Asiatic species are four types, one Siberian, one Himalayan, and two limited to Sikkim. The Siberian type, *P. nivalis* Pall., with crenate, serrate, rarely entire leaves, has a number of forms—one in the Caucasus, *P. Bayneri;* one in Turkestan (var. *farinosa*); *Moorcroftiana*, in E. Siberia, which there attains its largest development; the variety *pumila* Ledebour, which has been raised to specific rank; and finally, *P. purpurea* Royle. *P. Stuartii* is retained as a distinct species, and *Moorcroftiana*, *purpurea*, *lineariloba*, and *macrocarpa* are transferred from varieties of this species to *P. nivalis*, which seems a very intelligible conclusion. The chief difference between *P. nivalis* and *P. Stuartii* is in the colour of the flowers; all these varieties have purple flowers, and, although they form connecting links between the two species, the difficulty seems to have been surmounted on the most reasonable grounds.

The European species have been well done, but with such a mixture of hybrids as to confuse the minds of all ordinary mortals trying to unravel them. The practice by nurserymen on the Continent seems to have been for a long time past to assign the parentage to a plant on insufficient grounds, without in the first instance testing its truth. The plant known in English gardens as *P. nivea* here has been defined; Dr. Pax places it under *hirsuta*, but with this we cannot agree. *P. nivea* as grown in our gardens is more robust than *hirsuta*, and the scapes and calyx, and sometimes the leaves, are always covered with farina, which points to *P. pubescens;* and this is certainly where it belongs, as anyone can test for himself by raising *pubescens* as cultivated in gardens from seed.

On the whole we have much pleasure in adding our testimony to the value of Dr. Pax's monograph; it has been a labour of love, and the thorough way in which every detail has been verified will readily appeal to those best acquainted with the difficulties he has had to contend with. It is the best and most comprehensive work of its kind, is thoroughly trustworthy, and, as a ready reference, should be in the hands of every lover of these popular plants.

D. Dewar.

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*A Manual of Orchidaceous Plants cultivated under Glass in Great Britain.* Part IV. Cypripedium. James Veitch & Sons, Royal Exotic Nursery, Chelsea, S.W. 8vo, pp. 108. Price 10*s*. 6*d*.

The fourth part of this excellent work, which has recently been issued, is devoted to the cultivated forms of *Cypripedium*, now so popular in gardens. Preceding parts of the work have already been noticed in these pages, and it will be remembered that each part is complete in itself, as a monograph of the cultivated species and varieties of some important genus, or group of genera. The ground covered by the present instalment is stated as follows:—

"The species, varieties, and hybrids described in the following pages will come under the following heads:—

"I. *Eucypripedia*, including only the East Indian and Malayan species that constitute Bentham's (subsection) *Coriaceæ*.

"II. *Selenipedia*, coinciding with Reichenbach's *Selenipedium*, and including the anomalous *Uropedium Lindenii* of Lindley.

"III. *Garden hybrids*, in two divisions: (*a*) *Eucypripedium* hybrids; (*b*) *Selenipedium* hybrids."

Looking through the text, we find, of *Eucypripedium*, thirty-three species and sixty-six hybrids; and of *Selenipedium*, eight species and twelve hybrids. Several supposed species are reduced as varieties or synonyms; while two or three others are only admitted as species somewhat doubtfully. The garden hybrids strike one as a very numerous group, and what they are likely to become in the near future may be inferred from the following note:— "So generally is muling among Cypripedes now practised, not only in Great Britain, but also on the Continent of Europe, and in the United States of America, that there is scarcely an orchid collection of note in which a batch of seedlings may not be found." So numerous indeed are they already, that it was found impracticable to include all the hybrids that have been obtained up to the present. It is evident that hybrid Cypripediums are fast becoming florists' flowers; and we read with interest that "the pseudo-Latin names so much in vogue, together with the cumbrous Greek compounds, intelligible to none but the initiated, are as much out of place when applied to hybrid Cypripedes as they would be if applied to hybrid roses."

On one point we are inclined to differ from the author, namely, as to the desirability of merging the genus *Selenipedium* in *Cypripedium*. The grounds for this course appear to be as follows:—(*a*) That *Selenipedium*, though proposed by Prof. Reichenbach, was afterwards abandoned by the author in his subsequent articles in the 'Gardeners' Chronicle'; (*b*) that the two will hybridise together; and (*c*) that the discovery of the Malayan *Cypripedium Sanderianum* brings the relationship of the two groups morphologically nearer than its previously-known allies. As regards the first of these points, see the 'Gardeners' Chronicle' of July 7th, 1888, where a plant is described as *Cypripedium nitidissimum* and as *Selenipedium nitidissimum*, a repetition of a most unfortunate practice of giving two names, one for gardens, the other for science. On the second point it may be urged that hybrids between distinct genera are already in existence. The third point we fear is illusory. *Cypripedium Sanderianum* is a typical *Cypripedium* with a 1-celled ovary; true, its petals are remarkably attenuated, like those of *Selenipedium caudatum*, one of those curious analogies, of which numerous examples could be cited, where a species of one genus bears a closer external resemblance to one of another genus than to others of its own. But in this case, if the staminode, lip, and upper sepal be compared, the resemblance vanishes, or is not more marked than the resemblance between *Cypripedium philippinense* and *Selenipedium longifolium*, or between *C. Parishii* and *S. Boissierianum*. The crucial point is this, that *Selenipedium* has the 3-celled ovary of the *Apostasieæ*, while *Cypripedium* agrees with all other orchids in having a 1-celled ovary—a difference of greater importance than that which separates many admitted genera of orchids. A glance at the two excellent maps furnished in the work strongly emphasises this point. We can only add, in conclusion, that, beyond its value to cultivators, it is a highly-creditable production as a botanical work, and supplies a want that has long been felt, owing to the widely-scattered literature of the subject. The woodcuts, nearly forty in number, are excellent and faithful portraits.

R. A. Rolfe.

## Articles in Journals.

*Annals of Botany* (dated Nov., pub. Jan.). — D. H. Campbell, 'Development of *Pilularia*' (3 plates).—G. Murray & L. A. Boodle, 'Structural and systematic account of *Struvea*' (1 plate). — S. Schönland, 'Morphology of *Viscum album*' (1 plate). — T. Johnson, '*Sphærococcus coronopifolius*' (1 plate). — H. N. Ridley, 'Foliar organs of *Utricularia bryophila*, sp. n.' (1 plate). — M. M. Hartog, 'Floral Organogeny and Anatomy of *Brownea* and *Saraca*.'—H. M. Ward, 'A lily-disease' (5 plates).—W. G. Farlow, 'Apospory in *Pteris aquilina*.'—S. H. Vines, 'Tubercles on roots of *Leguminosæ*.' —J. B. Farmer, 'Development of endocarp in *Sambucus nigra*.'

*Bot. Centralblatt* (No. 1). — F. G. Kohl, 'Wachstum und Eiweissgehalt vegetabilischer zellhänte' (1 plate).—J. J. Kieffer, 'Neue Mittheilungen über lothringische Milbengallen.'—(No. 2). A. Hansgirg, 'Noch einmal über *Bacillus muralis* und uber einige neue Formen von Grotten-Schizophyten.' — C. O. Harz, 'Ueber den Dysodil.' — (No. 3). M. Kronfeld, 'Bemerkungen über Coniferen.'—J. Amenm, '*Leptotrichum glaucescens*.'—C. O. Harz, 'Ueber eine zweckmässige konser virungsmethode getrockneter Pflanzen.' —Id., 'Die Sporen der Hymenomyceten auf Papier zu fixiren.'— (No. 4). O. Burchard, 'Bryologische Reiseskizzen aus Nordland.'

*Botanical Gazette* (Dec.). — W. R. Dudley, 'Strassburg and its botanical laboratory.'—E. L. Gregory, 'Development of cork-wings on certain trees' (1 plate).—L. N. Johnson, 'A tramp in N. Carolina mountains.'

*Bot. Zeitung* (Jan. 4, 11). — J. Wiesner, 'Der absteigende Wasserstrom und dessen physiologische Bedeutung.'—(Jan. 11). H. Molisch, 'Ueber den Farbenwechsel anthokyanhältiger Blätter bei rasch eintretendem Tode.' — (Jan. 18). H. Solms-Laubach, 'Anton de Bary.'—(Jan. 25). W. Zopf, 'Ueber Pilzfarbstoffe.'

*Bull. Torrey Bot. Club* (Jan.). — W. G. Farlow, 'New or imperfectly known Algæ of United States' (2 plates).—N. L. Britton, 'Plants collected by H. H. Rusby in S. America' (*Duguetia? glabra, Trigyneia boliviensis, Cardamine speciosa, Sisymbrium? Rusbyi, Cremalobus bolivianus, Morisonia oblongifolia, Viola boliviana, V. Bridgesii, V. thymifolia, Alsodeia ovalifolia*, spp. nn., all of Britton: *Polygala andina, P. formosa, Monnina boliviensis*, spp. nn., of A. W. Bennett). —E. E. Sterns, 'Bulblets of *Lycopodium lucidulum*.'

*Gardeners' Chronicle* (Dec. 29). — *Aloe longiflora* Baker, *Pleurothallis punctulata* Rolfe, spp. nn. — (Jan. 5). *Peristeria Rossiana* Rchb. f., sp. n. — 'Monstrous Ivy Flowers' (fig. 2). — (Jan. 19). *Schomburghkia lepidissima* Rchb. f., sp. n.

*Journal de Botanique* (Jan. 1). — J. Costantin, 'Recherches sur *Cladosporium herbarum*.' — C. Sauvageau, 'Sur la racine du *Najas*.' —A. Franchet, 'Note sur le *Ranunculus chærophyllos*.' — P. A. Dangeard, 'Notice biographique sur J. Morière.'

*Magyar Növénytani Lapok* (Nos. 134, 135). — J. B. Keller. 'Fragmenta rhodologica ad floram hungaricam spectantia.'

*Notarisia* (Jan.). — G. B. de Toni, '*Pilinia* and *Acroblaste*.'—A, Hansgirg, 'Addenda in Synopsis Generum subgenerumque Myxophycearum.'—M. Raciborski, 'Su alcune Desmidiacee Lituane.'—A. Piccone, 'Noterelle Ficologiche.'

*Nuovo Giornale Bot. Ital.* (Jan. 10). — G. Arcangeli, 'Sopra alcune mostruosita osservate nei fiori del *Narcissus Tazzetta*' (1 plate). —F. Poggi & C. Rossetti, 'Contribuzione alla Flora Toscana.'— P. Gennari, 'Florula di Palabanda.' — J. Mueller, 'Lichenes Spegazziniani in Staten Island lecti.' — E. de Toni, 'Flora del Bellunese.' — A. Mori, 'Funghi di Modena.' — L. Nicotra, 'Flora Siciliana.'—G. Arcangeli, 'Sulla struttura dei semi della *Nymphæa alba*.'—Id., '*Nuphar luteum*.'—G. B. de Toni, 'Prima contribuzione diatomologica del Lago di Alleghe (Veneto).'—T. Caruel, 'Conspectus familiarum Phanerogamarum.'—G. Cuboni, 'Sulla Erinosi nei grappoli della Vite.'—Id., 'Sulla Cosidetta *Uva infavata* dei Colli Laziali.'

*Revue Gênérale de Botanique* (Jan. 15). — E. Bonnet, 'Note sur l'*Ectocarpus fulvescens*' (1 plate). — L. Guignand, 'Développement et constitution des anthérozöides. I. Characées' (1 plate). — G. Bonnier, 'Etudes sur la Végétation de la Vallée de Chamonix et de la chaine du Mont Blanc' (map).—H. Junelle, 'Assimilation et transpiration chlorophylliennes.' — L. du Sablon, 'Revue des travaux d'anatomie publiés en 1888. I. Anatomie cellulaire.'

*Scottish Naturalist* (Jan.).—H. Macmillan, 'Lichens of Inverary.' —J. W. H. Trail, '*Peronosporeæ* of Orkney.' — W. H. Beeby, 'On the Flora of Shetland' (*Glyceria distans*, var. *prostrata*, n. var.).—J. F. Grant & Arthur Bennett, 'Flora of Caithness.'—G. C. Druce, 'Plants of Peebleshire.'

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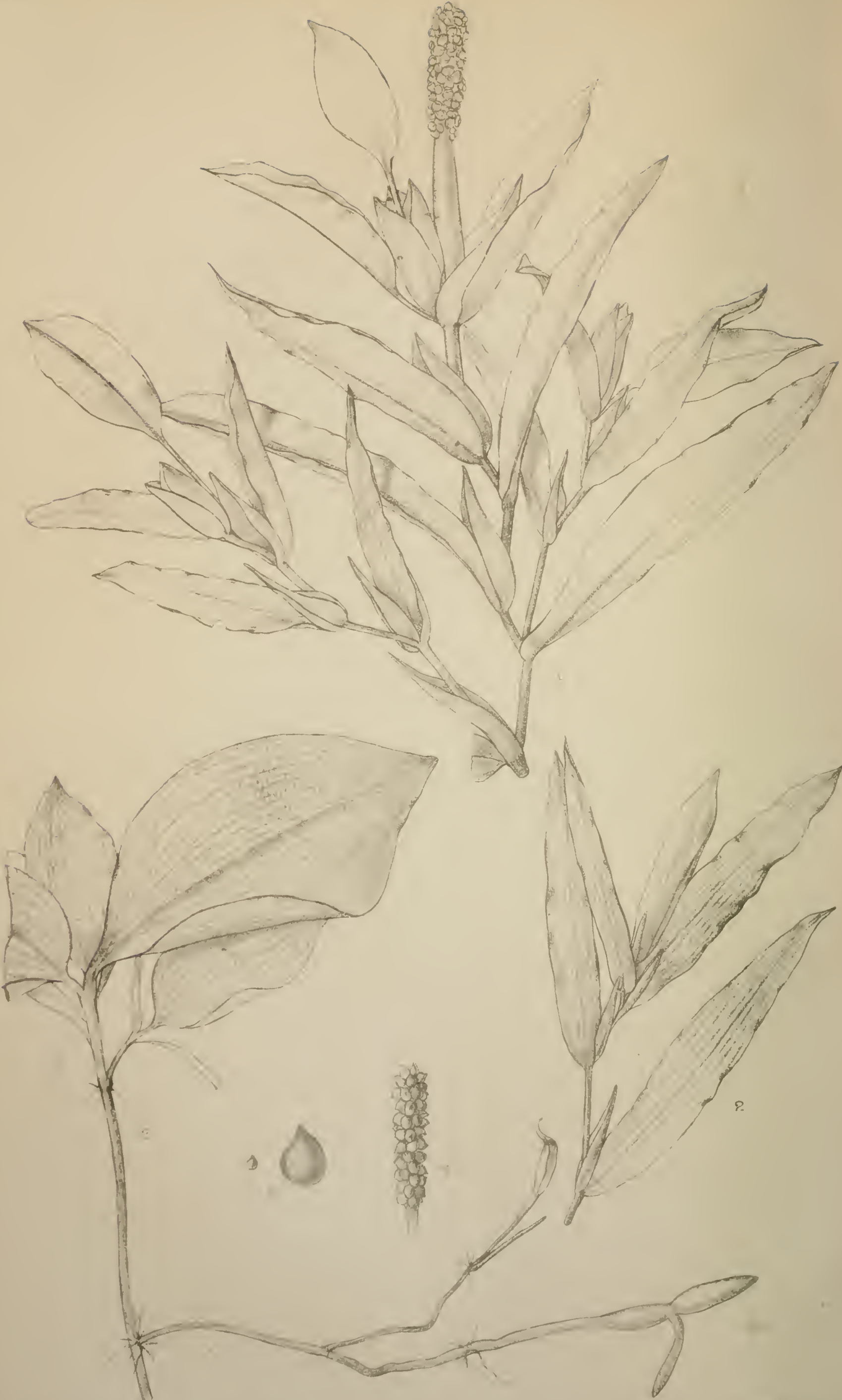
## *LINNEAN SOCIETY OF LONDON.*

*January* 17, 1889. — Mr. W. Carruthers, F.R.S., President, in the chair.—The following were elected Fellows: J. R. Green, M.A., Prof. Botany, Pharmaceutical Society; R. J. Harvey Gibson, M.A., Lecturer Botany, Univ. Coll., Liverpool; James W. White, of Clifton, Bristol; and Herbert Stone, of Handsworth, Birmingham. —On behalf of M. Buysman, of Middleburg, Mr. B. D. Jackson exhibited a series of careful dissections of *Nymphæa cærulea* collected by Dr. Schweinfurth in Egypt.—Mr. D. Morris exhibited specimens of drift fruit from Jamaica, where he had collected no less than thirty-five different kinds brought by the Gulf Stream from the mouths of the Orinoco and Amazon. Although the species exhibited had not been determined with certainty, it was believed to be probably *Humiria balsamifera* (the flower of which is figured by Eichler, 'Flora Brasiliensis,' vol. xii. pt. 2, 430, pl. xcii. fig. 1), but the fruit undescribed. It was commonly known in French Guiana as *Bois rouge*, and from it was obtained a gum used medicinally and burnt as incense. — Mr. T. Christy exhibited a material felted from Manilla hemp, and waterproofed, very strong and light, and particularly useful for surgical bandages, for which purpose it was highly recommended by army surgeons. — Mr. F. Crisp exhibited some specimens of agate so curiously marked as to lead to the erroneous supposition that they enclosed fossil insects and crustacea.—A paper was then read by Mr. J. G. Tepper, "On the Natural History of the Kangaroo Island Grass Tree, *Xanthorrhœa Tateana*." This tree grows abundantly in Kangaroo Island, South Australia, in poor, gravelly and sandy soil, intermixed with ferruginous concretions, and attains a height of from six to fourteen feet, with a diameter of six to eighteen inches, and a floral spike of from ten to nineteen feet. It is thus a most conspicuous plant, and lends a peculiarly weird aspect to the country it occupies. Its rate of growth is described as very slow, old settlers having remarked but little change in individual trees after thirty years' observation. The most remarkable feature in the structure of the stem is the formation of a dense ligneous central core immediately above and connected with the roots, exhibiting numerous annular zones, traversed by transverse (medullary) fibres. The flowers are borne in a dense spike upon a smooth peduncle. Individually they are inconspicuous, of a whitish colour, and develop a strong odour and abundant nectar during the warmer part of the day, when they are visited and fertilised by hymenopterous insects, the most remarkable being a large metallic-green Carpenter Bee (*Xylocapa*), which tunnels out cells in the dead flower-stalks.

Tab 286.



R Morgan lith

West Newman & Co imp

Potamogeton falcatus, *Fryer*

# NOTES ON PONDWEEDS.

By Alfred Fryer.

(Plates 286 & 287.)

**Potamogeton falcatus** mihi.—Stem round, slender, springing from a tuberous rootstock; branched from near the base with distant alternate ascending branches, the lower of which are permanently submerged, the upper ultimately rising to the surface. *Lower leaves* alternate, *amplexicaul*, *flat*, or slightly undulated at the margin, *entire*, rarely longitudinally folded and recurved; elliptical strap-shaped, gradually contracted from above the middle to the somewhat rounded base; apex acute or acuminate; the midrib is curved, and not quite central, so that many of the leaves are straight on one margin and curved on the other: with one or two rows of elongate cancellate areolations along the midrib, on each side of which are three lateral ribs connected by a few indistinct transverse veins. *Upper leaves* similar to the lower, *amplexicaul*, even when opposite and subtending the peduncles, or rarely (on the fruiting branches) stalked, floating, coriaceous, elliptical, with 12 *opaque* lateral ribs. *Stipules herbaceous*, *persistent*, lower usually small and narrow, ultimately not clasping the stem; upper larger, those at the base of the peduncles broad, stout, cymbiform. Peduncles usually shorter than the subtending foliage, equal, or only slightly swollen upwards in fruit, 1–1½ in. long. *Fruiting spike* ⅝–1 in. long, cylindrical, dense; *drupelets small*, dark green; *inner margin rounded*, terminated by the prominent subcentral beak; *outer margin almost semicircular*, *acutely keeled*; lateral ridges distinct, *distant from the central keel*. Colour of the whole plant dark green, or reddish green when young, drying darker, or blackish green.

When growing, *P. falcatus* in its early state has the habit and appearance of the *serratus-state* of *P. crispus;* later on, it resembles long-leaved forms of *P. heterophyllus*, or luxuriant plants may readily be mistaken for *P. Zizii*. When gathered, the young plants are so exactly like certain forms of *P. nitens* that it is difficult to find any specific difference. The difficulty of ranging it under any already-defined segregate will, however, be best explained by the following conflicting opinions I have been favoured with by botanists who have made a special study of the genus:—"Looks like *crispus × rufescens*"; "like an American form of *P. Zizii*"; "Your plant is certainly a form of *P. gramineus*"; "*A heterophyllus form*"; "*A nitens form*"; "*borealis?*"; "Your plant deserves a name." One more elaborate opinion I quote at length, because it seems to me of great value as a clear statement of the main difficulty to be overcome in establishing *P. falcatus* as a species:—

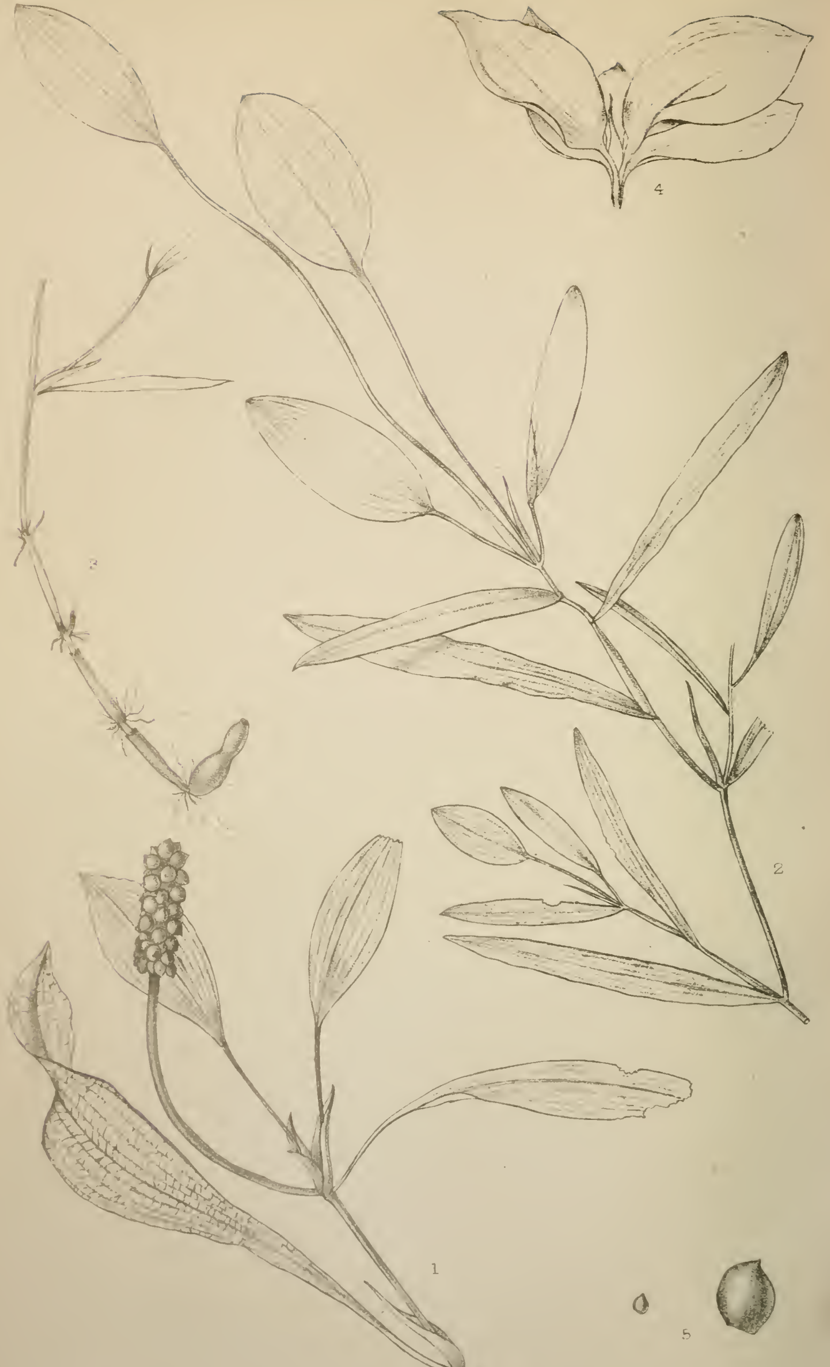
"I should not feel inclined to refer it to *P. Zizii*, nor do I see anything which suggests to me hybridity; I could not place it under *heterophyllus;* but I *could*, and feel disposed at present so to do, place it under *nitens*. Unless the early and autumnal states of

*P. nitens* reveal something antagonistic, I do not truly see how your plant is to be separated therefrom, further than as a var. or subspecies. . . . . Your plant may quite likely be distinct, and if you can really show that it is as distinct from *nitens* as it is from *heterophyllus* (always speaking of our ordinary British forms), then, to my ideas, it should take equal rank with those two forms—but at present it seems to me too near *nitens;* this is, I think, the point to be worked out" (W. H. Beeby, *in litt.*, Jan. 1, 1888; see footnote at end).

To this point, then, I address myself: I may as well say plainly in the outset that I cannot place *P. falcatus* under *nitens*, because I regard the latter plant, as presented in the ordinary British and continental forms, as a *barren hybrid.* I have never seen a fruiting specimen, and I do not know any botanist who has. It is remarkable that, although all authors describe the fruit of *P. nitens*, I have never been able to meet with a single fertile spike in any herbarium which I have looked through. Surely the absence of fruiting specimens from such collections as those of Mr. Arthur Bennett, and Mr. Charles Bailey, and from the British part of the National Herbarium at the British Museum, and from the fine collection of British Potamogetons in Prof. Babington's herbarium, is somewhat significant! Mr. Beeby, too, failed to procure a single fruiting spike of *P. nitens* from the Surrey stations he so carefully examined throughout the past summer. From a great quantity of fresh specimens he furnished me with from time to time I formed the opinion that, although the drupelets of *P. nitens* grow up to a certain size, like those of *P. decipiens*, they are all abortive, and decay as the season advances. This is but negative evidence I admit, but it is of a very strong nature. The leaf-characters of the two plants afford more direct evidence of specific distinctness: in *P. nitens* the leaves are usually longitudinally folded and recurved, and 12-ribbed; in *P. falcatus* they are 6-ribbed, flat, and ascending. The coriaceous floating leaves are more frequently produced in the latter species, and resemble those of *P. heterophyllus* rather than those of *P. nitens;* and, above all, they *essentially belong to the barren state of the plant*, although sometimes present on the flowering branches. In *P. nitens*, as far as I have seen, these coriaceous leaves belong to the flowering branches, and are rarely present on those which produce no flower-spikes. *P. falcatus* never produces the broad perfoliate leaves so commonly present in luxuriant states of *P. nitens* (var. *latifolius* of Tiselius), and the stipules differ considerably, approaching those of *heterophyllus.* Finally, the peduncles are more equal, being very slightly swollen upwards.

Turning to other allied forms:—*P. falcatus* is sufficiently distinguished from *P. heterophyllus* by its amplexicaul leaves; from *P. Zizii* by the same character, and by the *opaque* ribs of the coriaceous floating leaves, those of *Zizii* being translucent. The entire leaves without denticulations at once show that the resemblance to *P. crispus* is only superficial, although when growing and in the young state the two plants are not readily distinguished at a glance, even by the most accustomed eye.

Tab 28



R Morgan lith.

West Newman & Co imp

Potamogeton varians *Morong.*

The *land-form* is very robust, and differs in some degree from that of any of its congeners. With a general resemblance to that of *P. varians*, it has very thick coriaceous leaves, which vary in shape from broadly ligulate to elliptical ovate or orbicular. The rosettes of clustered leaves are sometimes formed at the end of a short erect stem, as in *P. Zizii*, and these stems occasionally produce lateral branches. When forsaken by the water, the already-formed stems continue to produce fresh leaves, which are coriaceous, and enable the plant to grow so freely that I have seen it in flower on the mud of a perfectly dry ditch. It seems as much at home under such circumstances as *Utricularia vulgaris*, which flowers freely out of water, and assumes the appearance of a land plant.

At present I can give only a single locality for *P. falcatus*, near Ramsey, in Huntingdonshire, where its distribution over one or two miles of fenland suggests that it was formerly an inhabitant of the boggy margins of the chain of meres which connected Whittlesea Mere with the old River Nene. But I think it likely that some other remarkable Huntingdonshire forms are varieties of this species, and I have seen plants from other British and Irish localities which probably belong to it.*

### Explanation of Plates.

Plate 286.—*Potamogeton falcatus*. 1, Upper part of flowering stem; 2, submerged *nitens*-like leaves; 3, land-form with tuberous stolon; 4, fruit-spike; 5, drupelet, nat. size and mag. N.B.—The submerged leaves have only three lateral ribs on each side of the midrib.

Plate 287.—*Potamogeton varians* Morong ined. 1, Upper part of flowering stem with ripe fruit-spike; 2, autumnal barren shoot; 3, tuberous rootstock; 4, land-form; 5, drupelet, nat. size and mag.

# A SYSTEMATIC AND STRUCTURAL ACCOUNT OF THE GENUS *AVRAINVILLEA* Decne.

By George Murray, F.L.S., and Leonard A. Boodle, F.L.S.

## I.—Systematic.

The genus *Avrainvillea* was founded by Decaisne, in 1842, in his 'Memoire sur les Corallines' (Ann. Sci. Nat. Ser. 2, Tom. xviii.), on an Alga found by d'Avrainville at the Iles des Saintes, near Guadeloupe. The only species described was *A. nigricans* Decne.

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* Since the above note was written, I have had a further communication from Mr. Beeby, which, in justice to him, I append, and which strongly supports my views on the hybridity of *P. nitens*:—"With regard to your *P. falcatus*, I should not now place it under *nitens*; after examining quantities of the latter plant in Surrey last year, in various stages of growth, and several gatherings in Shetland, I have found it to be absolutely sterile—a point in favour of the view held by some botanists, that it is a hybrid, I should accordingly be disposed to keep your plant distinct" (W. H. Beeby, *in litt.*, Feb. 15, 1889). I should be thankful to any botanist who would send me specimens of *P. nitens*—or *supposed nitens*—in fruit, and would gladly send in return examples of the fenland critical forms, such as *P. coriaceus*, *P. varians*, and *P. falcatus*. My address is—*Alfred Fryer, Chatteris, Cambridgeshire.*

In the same year M. Chauvin described the genus *Fradelia* (*F. fuliginosa*) in his 'Recherches sur l'organisation, &c., de plusieurs genres d'Algues,' Caen, on an Alga found by M. Fradel at Pernambuco. We have the authority of the MM. Crouan for regarding these as the same plant, and the descriptions themselves bear ample evidence of it. Nothing further is heard of the genus until 1858, when three more generic synonyms were added to it. These were *Chloroplegma* of Zanardini (Plant. in mari rubro, &c., Enumeratio, p. 290), *Rhipilia* of Kützing (Tab. Phyc. Bd. viii.), and *Chlorodesmis* of Bailey & Harvey (Ner. Bor. Am. iii.). The abundance of this synonymy is not to be wondered at, since the descriptions of *Avrainvillea* and *Fradelia* (though, as has just been said, sufficient for proving their identity with each other) are by no means eloquent as to the appearance and structure of the genus. Moreover, there was no figure published of either. Zanardini's *Chloroplegma* came from Eastern seas, Kützing's *Rhipilia* from the Antilles (same region as *Avrainvillea*), and Bailey & Harvey's *Chlorodesmis* from the Pacific; all three have been figured. *Chloroplegma* was figured very poorly, and, except that Zanardini himself subsequently added another species to it, this genus also departed into the waste of synonymy. *Rhipilia* of Kützing, on the other hand, was carefully figured in the 'Tabulæ,' and thus became widely known to phycologists. He described two species of it, *R. longicaulis* and *R. tomentosa*. The latter, however, is a species of *Udotea*, as we have been able to satisfy ourselves from an examination of the type-specimen kindly lent to us by M. Suringar. *Rhipilia*, however, gained a recognition in systematic phycology, and Prof. Dickie added to it *R. Rawsoni* from Barbadoes (Journ. Linn. Soc. vol. xiv.). The type is with his herbarium in the British Museum, and is identical with *Avrainvillea nigricans* Decne., according to specimens so named by MM. Crouan from Guadeloupe (Mazé & Schramm), also in the British Museum. In 1886 Mr. Murray described (Trans. Linn. Soc.) another species of *Rhipilia* (*R. Andersonii*), from the Mergui Archipelago, where it was collected by Dr. Anderson. This is, beyond doubt, identical with the *Chloroplegma papuanum* Zanard. collected by Beccari, since we have been able to examine the types of both in the British Museum, to which institution Dr. Beccari recently presented a specimen of *C. papuanum*. It is now *Avrainvillea papuana*.

MM. Crouan, in Mazé et Schramm's 'Algues de la Guadeloupe,' first pointed out the identity of *Rhipilia* with *Avrainvillea*, though it is only fair to claim for one of us that he had independently come to the same conclusion. As for *Chlorodesmis* of Bailey & Harvey, its identity with *Avrainvillea* has never been suspected until now. The abundant authentic material from Harvey in the British Museum, as well as the specimens of *Chlorodesmis pachypus* Kjellm., and the rich material collected by Ferguson in Ceylon (No. 290), leave no doubt in our minds; *firstly*, that *Chlorodesmis comosa* is merely an *Avrainvillea* with the filaments free, instead of interwoven, and the rhizoid mass probably broken off short; and, *secondly*, that other forms exactly resembling *Chlorodesmis* (Ferguson's No. 290) are young-growth forms connected by an unbroken series with mature forms of *Avrainvillea*—in this case *A. papuana*. The *C. pachypus* of Kjellman, from Labuan, is a link in the chain, having its counterpart, however, in the Ferguson series. The other species of *Avrainvillea* which do not affect in any way the generic synonymy will be found described in their proper place.

The distribution of the genus is of some interest. It occurs throughout tropical seas; the West Indies and Brazil represent its occurrence in the Atlantic; the Red Sea and Indian Ocean possess forms of it, whence its distribution extends through the East Indian Islands to the Pacific. The main point of interest lies in the fact that the Atlantic forms (*A. nigricans* Decne., *A. longicaulis* nob., *A. sordida* Crn. (excl. syn.), *A. Mazei* nob.) are confined to the Atlantic, so far as is known; and the Eastern and Pacific forms (*A. papuana* nob., *A. lacerata* J. Ag., *A. obscura* J. Ag., *A. comosa* nob., and *A. cæspitosa* nob.) are also a group by themselves, not only geographically, but from the botanical point of view as well.

The specimens occur in the shallow seas; from no depth beyond fifteen fathoms, so far as is known. In the practically speaking tideless sea of the Antilles, Mr. Murray found *A. longicaulis* and *A. sordida* Crn. most frequently at depths varying from two to fifteen fathoms, but M. Mazé records specimens from the depth of *one metre* at Guadeloupe. Dr. Anderson found *A. papuana* at low-water mark in the Mergui Archipelago. According to Harvey, *A. comosa* occurs on coral reefs, but all the other species appear to resemble the West Indian forms in preferring mud and coral-sand. MM. Mazé & Schramm say that specimens sometimes occur on the shell of *Strombus gigas*. Mr. Murray found *A. longicaulis* occurring in great beds, the plants connected with each other by a rhizome-like structure under the surface of the mud. It grows most frequently in company with *Zostera* and species of *Udotea*. Dredging for it was not a particularly successful operation, since even a dredge specially designed for ploughing up mud-inhabiting organisms (kindly lent him by the Scottish Marine Biological Association) frequently broke off the fronds, and left the deeper rhizoids behind. The best specimens were obtained by a skilful negro diver (accustomed to dive for sponges, &c.), who was taught without difficulty to distinguish *Avrainvillea* from *Udotea* (among other matters) *in sitû*, a performance which has not been equalled by certain phycologists under far happier circumstances!

The systematic position of the genus is certainly next *Penicillus*, and very near *Udotea*, to which it bears a strong resemblance as seen with the naked eye. Unlike these genera, no species of *Avrainvillea* has been found with an incrustation of carbonate of lime, but it may be pointed out here that the amount of this incrustation varies with the species in both *Penicillus* and *Udotea*.

The following is a systematic disposition of the genus:—

AVRAINVILLEA Decne. (Ann. Sci. Nat. Ser. 2, Tom. xviii. p. 108, et Acad. de Paris Faculté d. Sci. 1842, p. 96). Alga marina viridi-fuscescens, sessilis vel stipitata, ex filis non-septatis, cylindricis vel moniliformibus, dichotomis, plus minusve intertextis

interdum liberis, sursum in frondem flabelliformem inferne in plexum rhizinarum implicatis, composita.

Syn. *Fradelia* Chauv. ('Recherches sur l'organisation, &c., de plusieurs genres d'Algues,' Caen, 1842); *Chloroplegma* Zanard. (Plant. in mari rubro, &c., Enumeratio p. 290, tab. 13); *Rhipilia* Kütz. (Tab. Phyc. Bd. viii. p. 12, tab. 28, 1858); *Chlorodesmis* Bail. et Harv. (Ner. Bor. Amer. iii. p. 29, et in Wilkes, Explor. Exped. vol. 17 (Botany), p. 172).

1. A. NIGRICANS Decne (*loc. cit.*). Sessilis vel brevistipitata, fusco-nigrescens, fronde flabellata, irregulariter lobata, lobis obtusis, coriacea, ex filis dichotomis intertextis, torulosis, apicibus obtusis, composita; stipite simpliciusculo tereti crasso.

Syn. *Fradelia fuliginosa* Chauv. (*loc. cit.* p. 124, *fide* Crouan); *Rhipilia Rawsoni* Dickie (Journ. Linn. Soc. Bot. xiv. p. 151, pl. 11).

Hab. In Antillis, Iles des Saintes prope la Guadeloupe, *d'Avrainville;* Guadeloupe, *Mazé et Schramm!* (Nos. 490, 1200); Barbadoes, *Rawson!* et in oris Brasiliæ ad Pernambuco, *Fradel.*

2. A. LONGICAULIS nob. Flabelliformis, viridi-fusca, lacerata, coacta, stipite elongato, e rhizomate subterraneo surgente, ex filis, dichotomis, intertextis, regulariter moniliformibus, apicibus obtusis, composita.

Syn. *Rhipilia longicaulis* Kütz. (Tab. Phyc. Bd. viii. p. 13, t. 28, fig. 2); *Avrainvillea sordida* var. *longipes* Crn. (in Mazé et Schramm, Algues de la Guadeloupe, p. 90).

Hab. In Antilles, *Sonder;* ad ins. Guadeloupe, *Mazé et Schramm!* (No. 1126, non No. 1234); St. Thomas, '*Challenger*'! Grenada, *Murray!*

3. A. SORDIDA Crn., excl. syn. (in Mazé et Schramm, *loc. cit.*, p. 89). Flabelliformis, zonata, viridi-fusca, textura coriacea, stipitata, ex filis dichotomis, cylindricis, intertextis, hinc illinc moniliformibus, apicibus obtusis, inferne viridibus sursum fuscescentibus, composita.

Hab. Ad ins. Guadeloupe, *Mazé et Schramm!* (Nos. 30, 174 *bis*); Grenada, *Murray!*

Directly above the bifurcation the filaments are frequently moniliform for some distance. This species is distinctly intermediate between *A. longicaulis* and *A. Mazei.*

MM. Crouan derived the name *sordida* from the *Udotea sordida* Mont., with which they took this form to be identical. They also cite *Chloroplegma sordidum* Zan. Both these species are identical with the *Udotea lacerata* Harv., and will be found cited here under *Avrainvillea lacerata* J. Ag. Crouan also quotes under this species *Rhipilia tomentosa* Kütz., which is identical with *Avrainvillea lætevirens* Crn., and both of these forms are to be found among our species exclusæ, since they obviously belong to *Udotea.* Moreover, the *Avrainvillea sordida* var. *longipes* Crn. is, as has been seen, another species, *viz.*, our *A. longicaulis.*

4. **A. Mazei** nob. Flabelliformis, sordide fusca, textura coriacea, stipite elongato, ex filis dichotomis, cylindricis, intertextis, fulvis, apicibus obtusis, composita; rhizinæ diametro irregulares, sed haud torulosæ.

Hab. Ad ins. Guadeloupe, *Mazé et Schramm* ! (sub nominibus *Flabellariæ fimbriatæ* (No. 65) et *Avrainvilleæ sordidæ* var. *longipedis* Crn. (No. 1234), ad ins. Marie Galante prope la Guadeloupe).

5. A. PAPUANA nob. Sessilis vel brevistipitata, integro-flabelliformis, interdum paulisper lacerata, textura coacta, ex filis dichotomis, cylindricis, intertextis, viridibus tandem inferne fulvis sursum fulvo-aurantiacis, irregulariter et longis intervallis constrictis, apicibus obtusis subclavatis, composita; rhizinæ inæqualiter torulosæ.

SYN. *Chloroplegma papuanum* Zanard. (Nuovo Giorn. Bot. Ital. x. 1878, p. 37); *Chlorodesmis pachypus* Kjellm. (in Wittr. et Nordst. Alg. Exsicc. No. 343); *Rhipilia Andersonii* G. Murr. (Trans. Linn. Soc. Bot. Ser. 2, vol. ii. (1886), p. 225, tab. 31).

HAB. Ad Sorong, Nova Guinea, *Beccari* ! Labuan, Borneo, *Kjellman* ! Mergui Archipelago, *Anderson* ! Ceylon, *Ferguson* ! (Nos. 290, 313); (Philippines ?), *Cuming* ! Nova Caledonia, *Hb. Le Jolis* ! (sub nomine *Chloroplegmatis sordidi* Zan.).

6. A. LACERATA J. Ag. (Till. Alg. Syst. viii. p. 54). Cuneato-flabelliformis, fusco-olivacea, sordida, obsolete zonata, ex filis dichotomis, intertextis inferne viridibus sursum fusco-succineis, torulosis, apicibus obtusis composita.

SYN. *Udotea sordida* Mont. (Plant. Cellul. in ins. Philipp. Hooker's Lond. Journ. Bot. vol. iii. p. 659); *Chloroplegma sordidum* Zanard. (Plant. in mari rubro, &c., Enumeratio, p. 291, tab. 13); *Udotea lacerata* Harv. (Friendly Islands Algæ, No. 86).

HAB. Ad ins. Philippines, *Cuming*, No. 2233; in mari rubro, *Portier* (*Hb. Figari*); ad ins. Amicorum (Friendly Islands), *Harvey* ! Mauritius, *Pike* !

7. A. OBSCURA J. Ag. (Till. Alg. Syst. viii. p. 53). "Fronde supra imam basem dilatatam surgente stipite brevi complanato, apice in flabellum terminale latius cuneatum crassum luridum, margine erosum abeunte."

SYN. *Anadyomene ? obscura* C. Ag. Sp. Alg. p. 401.

HAB. In oceano pacifico calidiore; ad Guham in insulis Moluccis a Gaudichaud lecta.

Specimen nullum vidimus.

8. A. COMOSA nob. Sessilis, laxe filamentosa, viridis, ex filis dichotomis, cylindricis, liberis, penicillatis, apicibus obtusis, composita; rhizinæ torulosæ densissime intertextæ.

SYN. *Chlorodesmis comosa* Bail. et Harv. (Ner. Bor. Am. iii. p. 29 (1858), et in Wilkes, Explor. Exped. xvii. (Botany), p. 172 (1862–74).)

HAB. Ad ins. Feejee, *Harvey*, '*Challenger*' ! Amicorum (Friendly Islands), Vavau et Lifuka, *Harvey* ! (No. 90), et Tongatabu, *Hb. Mus. Brit.* ! Upolu, Samoa, *Hb. Mus. Brit.* ! Nova Caledonia, *Hb Le Jolis* ! Loo Choo, *Wright;* Noukahiva, *Jardin;* Port Denison, *Sonder.*

Specimen ad ins. Guadeloupe a Mazé et Schramm lecta (*loc. cit.* sub nomine *Chlorodesmidis comosæ*, p. 98, No. 338) forsan *Vaucheriæ* sp. est.

This very interesting form (the original generic type of *Chlorodesmis*) differs from the other species in the *mature* state in having

free frond-filaments. The young frond-filaments of *A. papuana* are (as has been pointed out) also quite free. The *Chlorodesmis*-form in fact seems to stand in much the same relation to *Avrainvillea* as the *Espera*-form does to *Penicillus*, according to the interesting research of M. Woronin. In many specimens the characteristic constriction of the filaments is situated a short distance above their bifurcation, and one is often a little higher than the other.

### *Species inquirendæ.*

9. A. CÆSPITOSA nob. Specimina immatura ex filis crassis, dichotomis, cylindricis, plus minusve liberis, inferne decumbentibus, radicantibus, sursum adscendentibus, terminalibus erectis, composita.

SYN. *Chlorodesmis cæspitosa* J. Ag. (Till. Alg. Syst. viii. p. 49).

HAB. Ad Ceylonam, *Ferguson*! (No. 110), et ad ins. Comoro, *Hildebrandt*! (No. 1895, sub nomine *Chlorodesmidis comosæ* Harv.).

10. CHLORODESMIS MAJOR Zanard. (Flora, 1874, p. 504).

HAB. Ad ins. Lord Howe, *Fullager et Lind.*

Specimen nullum vidimus. Forsan status immaturus *Avrainvilleæ comosæ* vel *A. cæspitosæ*.

### *Species exclusæ.*

*Rhipilia tomentosa* Kütz. (Tab. Phyc. Bd. viii. p. 12, tab. 28, fig. 1) et *Avrainvillea læte-virens* Crn. (in Mazé et Schramm, *loc. cit.*, p. 89) *Udoteæ* species eadem sunt.

*Chlorodesmis vaucheriæformis* Harv. (Ner. Bor. Am. iii. p. 30, pl. xl. D), a Farlow ('Marine Algæ of New England,' p. 60) ad *Derbesiam tenuissimam* Crn. relata est.

(To be continued.)

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## TWO NEW ATHYRIUMS FROM THE N.W. HIMALAYAS.

By COL. R. H. BEDDOME, F.L.S.

**Asplenium** (ATHYRIUM) **Duthiei,** n. sp. — Rhizome wide-creeping, black, nearly naked; stipe 3–4 in. long, furnished with a few ovate or lanceolate deciduous scales, glabrous, pinkish; fronds narrow, ovate-lanceolate, about 12 in. long by 3–4 in. broad; pinnæ lanceolate, alternate, about 20 on each side; lower ones gradually reduced, the central ones $1\frac{1}{2}$–2 in. long, $\frac{1}{2}$–$\frac{3}{4}$ in. broad, pinnatifid nearly or quite to the rachis into sharply-toothed obovate or lanceolate lobes about 2 lines broad; texture herbaceous; rachises glabrous, pinkish, furnished with a few deciduous large lanceolate scales; both surfaces glabrous; veinlets forked; sori asplenioid or hippocrepiform, 6–8 to each pinnule or lobe, *i. e.*, 3–4 on each side on the lower veinlets midway between the edge and the midrib.

Collected by Dr. Duthie in the N.W. Himalayas. No. 389, Gangotee, near the source of the Ganges. No. 392, under Srikanta, 12–13,000 ft. No. 3667, at Ralam Glacier, Kumaon, 12–13,000 ft.

It is very similar in cutting to *Lastrea Brunoniana*. Dr. Duthie's three specimens had been sorted into that packet at Kew where they were detected as an *Athyrium* by Mr. Hope.

**A.** Asplenium (Athyrium) **Macdonelli**, n. sp.—Rhizome strong, creeping; stipes much thickened at the base, about 12 in. long, furnished with a few deciduous large lanceolate scales, and furfuraceous, as is the rachis, with tawny curled hair-like scales; fronds pinnate, about 14 in. long by 8–10 in. broad at the base, ovate to deltoid-lanceolate; pinnæ lanceolate, about 18–20 pairs, alternate or subopposite, 4–5 in. long by about 1½ in. broad, pinnatifid nearly to the midrib, leaving only a winged margin to the villose partial rachis; pinnules ligulate, oblong from a square base, about ¼ in. broad, cut down about one-third into small oblong lobes; texture herbaceous; surfaces naked or nearly so; veins 1 to each lobe, forked or pinnate, or rarely simple; sori 1 to each segment, not reaching the margin; involucres athyrioid or asplenioid, generally very hippocrepiform, never diplazioid.

This in cutting much resembles the more cut varieties of the Ceylonese *Diplazium Schkuhrii*, but differs much in its involucres. It was discovered by Mr. M~~a~~cdonell, of the Forest Department, in the Chumba Valley, at about 5000 ft. elevation. (Himalayas)

# FURTHER NOTES ON HIERACIA NEW TO BRITAIN.

By Frederick J. Hanbury, F.L.S.

The following notes will supplement those which appeared in this Journal for July, 1888, and the few preliminary remarks which preceded the earlier paper are equally applicable on the present occasion. I again visited the north coast of Sutherland in July last, accompanied this time by Mr. J. Cosmo Melvill. We spent several days in the immediate vicinity of Ben Hope, which, with the exception of Strath Naver, was the only *new* ground visited in Sutherland last year. I spent a few days in the neighbourhood of Settle, on the way north, and about a fortnight among the Breadalbane Hills, on the return south. Of the following species now recorded as British, the three first were not collected by myself.

*Hieracium lapponicum* Fr. By a small stream at the head of Cwm Tarell, Breconshire, by the Rev. Augustin Ley, in July, 1887. Being unable to place this plant under any of the names of the Hieracia already known to this country, I sent it with many others to Dr. Lindeberg. He identified it as the above species, marking it with a note of certainty, and adding, "Valde inopinatum!" Mr. Ley kindly supplied me with a fine series of fresh specimens last year, and I find these to agree well with Fries' description.

*H. sparsifolium* Lindeb. The earliest specimen I have of this very marked species was collected by Messrs. H. & J. Groves on Beinn Cruachan, Argyllshire, in August, 1883. It lay in my herbarium for some time without any name, Messrs. Groves not being able to place it under any of our previously-known species. Since this specimen was identified by Dr. Lindeberg, the plant has been found by the Rev. Augustin Ley near Penygwrydd, Carnarvonshire, in 1886; at the slate-quarries, Bethesda, Carnarvonshire, in August, 1888; by the Revs. E. F. & W. R. Linton at Uig, Skye, in August, 1888; and in the same month by Mr. W. F. Miller in Glen Lyon. A description of the species will be found on p. 18 of Dr. Lindeberg's 'Scandinaviens Hieracier,' and the specimens collected agree well with those issued in the 'Hierac. Scand. Exs.'

*H. salicifolium* Lindeb. *H. corymbosum* Fr. pr. p. Cliffs of Llyn Dulyn, Carnarvonshire, 30th August, 1887, by the Rev. Augustin Ley. This again was identified by Dr. Lindeberg himself, and our Welsh plant agrees well with the specimens published in the 'Hierac. Scand. Exs.'

*H. murorum* L., pt. var. *ciliatum* Almq. Among rocks by the Almond, Perthshire, first by Dr. F. Buchanan White, and subsequently, in his company, by myself.

*H. diaphanoides* Lindeb. Hierac. Scand. Exs. No. 123. The first time I collected this plant was in Teesdale, in June, 1883, when I took it to be a form of *H. vulgatum* Fr. Last year, however, whilst collecting on the limestone scars about Settle, accompanied by the Misses Thompson and the Rev. W. H. Painter, I again found what I believe to be the same plant, and was then sure that it could not properly be placed under *H. vulgatum* Fr. The long, narrow, shining buds, densely clothed with setæ, and almost devoid of simple hairs and floccose down, and the clean cut of the whole plant, instantly attracted my attention. Normal *H. vulgatum*, Fr., as well as the var. *rubescens* Backh., were growing in the same place, but this plant was unmistakably different to either, and I remarked at the time that it was certainly new. Dr. Lindeberg has now identified my Teesdale specimens as belonging to the above, and I have little hesitation in placing the Settle plants under the same name.

In my notes published last July I said that I purposely postponed speaking of several new forms until I had had the advantage of another opportunity of studying them *in situ*. This I had last summer, and I now propose to treat of them in the same brief way as I did of those described in my last paper, and under names which will serve, for the present at any rate, to distinguish them.

**H. Backhousei**, n. sp. Belonging to the *Nigrescentes*, but quite distinct from any of our described species. I first collected it, in the company of the Rev. E. S. Marshall, near the Dhuloch, Aberdeenshire, in 1886. On referring the plant to Mr. Backhouse, he thought at the time that it might be an extreme form of *H. nigrescens* Willd., but added, "Let Professor Babington decide; I should be satisfied if he thinks safe to give it a new name." Prof. Babington wrote, "I do not think that this is *nigrescens*, nor *gracilentum*. It is very probably new." The subsequent experience of the plant under cultivation during two seasons, and grown side by side with *H. nigrescens* Willd. and *H. gracilentum* Backh., has abundantly shown my first impression to be correct. It may be recognised by its erect, glossy, subcoriaceous, radical leaves, with long, sharp, forward-pointing teeth. It differs also from *H.*

*gracilentum* in the clasping, sessile, strongly-toothed cauline leaves, and in the involucre. From *H. nigrescens* in the leaf-characters as above also in having only slightly livid styles, which become yellow under cultivation, and in other minor characters. I also find a plant collected by Mr. G. C. Druce in 1887 by Loch Aan, Banff, and another collected by Messrs. H. & J. Groves in Glen Eunach, Easterness, to be the same. This latter specimen was seen by Dr. Lindeberg, who wrote, "Species ex Alpinis, Hieracio nigrescent. proxima." Since Mr. Backhouse's prolonged and careful work among the Cairngorm Mountains, there seemed little left to be done there, and indeed, after spending portions of three successive seasons among these hills, this appears to be the only *Hieracium* I have found which required a new specific name, and I think it may therefore be fairly associated with the name of one who has done so much towards elucidating the botany of one of the richest and most interesting districts in the country.

*H. anglicum* Fr., var. *longibracteatum*. A well-defined and strongly-marked variety of *H. anglicum* Fr. I have found it during four successive seasons at many points along the north coast. It is one of the plants characteristic of the neighbourhood, and is, as far as I am aware, the only form of *H. anglicum* found in these parts. I sent specimens to Dr. Lindeberg to ascertain if any such form occurred in Scandinavia. He returned the first specimens sent marked, "Species bene distincta, &c.," but later specimens as "*H. anglicum*, f.," and in this Mr. Backhouse and Prof. Babington concur. The plant is of more graceful habit, and usually of smaller size than other forms of this species. The leaves are blue-green, and extremely glaucous and glabrous on both sides. The peduncle and involucre are grey with stellate down, and the bracts of the latter are extraordinarily attenuated; this character is chiefly noticeable after the plants are dried. It is abundant about Betty Hill, about Ben Hope, and westward to Durness; whilst Mr. J. Grant found it last year near Reay, in Caithness.

**H. caledonicum**, n. sp. This is another species found in considerable abundance on the coasts of Caithness and Sutherland, being especially abundant and luxuriant on the sandy cliffs at Melvich. It is perhaps as near to *H. cæsium* Fr. as to any of our hitherto acknowledged species, although Dr. Lindeberg wrote of it, "Longe ab Hio. cæsio recedit." It is a showy plant, with large, rather orange-yellow heads borne on long, slender peduncles. The bracts of the involucre are narrower than in my *H. pollinarium*, and, unlike that species, are clothed with very numerous, simple hairs, whilst the setæ are almost, and in some cases entirely, absent. The styles are of an olive-brown colour. The radical leaves are rather large, ovate, and bear on their margins long glandular teeth. There is usually one stem-leaf. I have found plants almost, if not quite, identical with the above, by the Clunie, at Braemar.

**H. Farrense**, n. sp. I have here adopted a purely local name for a plant I have hitherto found only by the banks of the Naver, in the parish of Farr, Sutherland. I have collected it in some quantity during three successive seasons, and now have it in cultivation. It belongs to the same section as the last, and is nearly allied to it, but differs in having long, stalked, *lanceolate*, radical leaves, more numerous (2 or 3) stem-leaves, and the involucre *densely* floccose and clothed with numerous black-based hairs *and setæ*. The styles are olive-yellow, rather than olive-brown. In general appearance and outline the plant is quite distinct from the preceding. Prof. Babington tells me he has a similar plant collected by Prof. Oliver on Ben Clibrick. This mountain, though about thirty miles from where I collected my specimens, rises above Loch Naver, out of which the River Naver flows, and the locality is consequently in the same watershed.

**H. proximum,** n. sp. First found at Reay Links, Caithness, in 1885, by the Rev. H. E. Fox and myself. I have collected and observed it at the same place four years in succession. In 1887 I found it by the Thurso River, in Caithness, and also on the sandy cliffs west of the Naver, in Sutherland. It is a very handsome plant, and a well-marked species. In confirmation of this latter remark I may mention that on our arrival at the little inn at Reay last summer, we met the Revs. E. F. & W. R. Linton, who told us they had just come across a *Hieracium* that was certainly new; the plant to which they referred proved to be the above, and was from the original station. It belongs to the *vulgatum* section. Dr. Lindeberg wrote of a Reay specimen, "Forma ad H. vulgata, in Scandinavia ignota"; and subsequently of a specimen from the Thurso River, "H. vulgato affine, . . . . spec. nova." The plant is of robust habit, bearing few large showy heads. Styles olive-brown. Involucral bracts broad, and clothed with long, white, black-based hairs, and few setæ. The leaves are of a yellowish-green colour, thick leathery texture, and rough on both surfaces with bulbous-based hairs. Cauline leaves, two or three, rapidly decreasing upwards.

*H. crocatum* Fr., var. *maritimum*. This is another beautiful form from the north coast of Sutherland, growing on sandy slopes by the sea. It is of a tall, narrow, upright habit. The foliage is very dark green, and the stem of a reddish-purple colour. It differs from the type chiefly in the long, narrow, *practically entire*, fleshy leaves, and in the extraordinarily broad, dark, involucral bracts.

I will only add that my object in this, as in my preceding paper, has been to draw attention to, rather than give any detailed descriptions of, these new species and varieties. I hope during the course of the next few weeks to send examples of them all to the Botanical Department of the British Museum at South Kensington, so that any who may feel an interest in them may be able to refer to them there, pending the fuller descriptions and plates which I hope to publish before long.

# THE COLLECTING AND STUDY OF WILLOWS.

By F. Buchanan White, M.D., F.L.S.

A recent examination of several public and private herbariums has too clearly shown that Prof. Babington's statement—quoted by Mr. Leefe in this Journal nearly twenty years ago—"that the British Willows are a disgrace to our flora," is still too true. Recently many obscure points in the botany of our islands have been, or are being, cleared up, and our knowledge of various difficult genera, such as *Rosa*, *Rubus*, *Hieracium*, and *Potamogeton*, is vastly increased; but the genus *Salix* has remained much in the same condition for many years, and the only real advance which has been made since Smith's time has been in reducing many of the Smithian and other supposed species to the rank of varieties. The chief shortcoming on the part of British botanists in regard to the Willows has been the ignorance, or ignoring, of the work of the continental salicologists with relation to the phenomenon of hybridism in the genus. Only a few of the species which occur are in Britain recognised as, or supposed to be, hybrids, but many botanists seem to be unaware that theoretically every Willow will hybridise with almost every other species, and that practically the number of hybrids actually exceeds the number of true species. Till this fact is recognised, and these hybrids sought out and recorded, we cannot hope to have an accurate acquaintance with the distribution of the British Salices.

Another hindrance to the study of the British Willows has been the difficulty of naming the varieties which are still retained in our lists and handbooks, though some of the latter truly say that these varieties are scarcely distinguishable. As for the great majority of these varieties, the sooner their names are consigned to oblivion the better, for of them it may be said that they are *voces et prœterea nihil*, and their retention serves only to render more difficult a study that is already sufficiently intricate. Many of them were founded on cultivated individuals, and, if they exist in nature at all, it is only as ordinary links scattered here and there in a long chain of innumerable modifications. The first lesson, therefore, that the student of British Willows must learn is to abandon without compunction almost all the varietal names which appear in the 'London Catalogue.'

As Smith, Leefe, and others have rightly said, Willows, to be known well, must be studied in a living condition. But, as it is not in all cases or at all times possible to do this, *good* specimens should be preserved. Unfortunately this is a fact that is not always recognised, and hence many specimens which are worse than useless exist in collections. A proper and useful Willow-specimen should consist of a flowering-example gathered in fit condition, and of two leaf-examples, one from a terminal-shoot, the other from a side-branch.

In collecting Willows it is of the utmost importance to guard against an admixture of specimens. The bushes should not only be marked, but a note of their situation taken. A good method of marking is to cut Roman numerals on the bark, but, since this is troublesome with the higher numbers, the same numbers can be repeated when the localities are distinct. To avoid confusion in the vasculum, the collector should provide himself with slips of paper (3 or 4 inches long), with a slit cut in each. On these the number of the bush and indications of its situation are written, and then the specimens thrust through the slit and placed in the vasculum. On reaching home, the number and other particulars of each bush must be entered in the note-book, and the permanent or note-book number (Arabic figures) placed opposite it. Then by means of small pieces of paper attach to each specimen its permanent number. In this way all risk of mixing specimens is reduced to a minimum. The permanent numbers of course must not—unlike the tree-marks—be used for more than one bush.

Having attached to each example its number, any particulars which can be seen more readily in the fresh than in the dried plant may be entered in the note-book. These should include the colour of the leaves, twigs, stigmas, and anthers; the nature of the filaments—whether free or more or less combined—and pubescence, if any, on them; shape of the nectary; style of the venation of the leaves, whether raised or impressed, &c. The specimens should be very carefully dried, and subjected to as much pressure as will keep the leaves from wrinkling, but not so much as to crush the catkins altogether. The leaves should be so arranged that the underside of some of them—both the old, or lower, and the younger, or upper—be shown.

The periods of growth when specimens should be taken is important. Male catkins should not be too old, but should be in full flower, and some with the pollen shed, so as to show the colour of the empty anthers. Female catkins should neither be too young nor too old, and should illustrate the condition of the fully-developed stigmas. When it is possible, specimens *in fruit* should also be obtained, but not too old, as burst capsules are comparatively useless.

The leaves should not be taken till they have arrived at maturity, and not, as a general rule, before the middle of August. Young leaf-specimens are sometimes useful as supplementary examples. It is important, in taking leaf-specimens, to secure side-branches as well as shoots, since the character of the leaves on these is often different.

In collecting Willows every bush should be examined, not only when in flower, but when in leaf, and, if there is the least doubt about the species, specimens taken. Where more than one species grows together, a sharp look-out should be kept for hybrids, but hybrid forms occasionally occur at some distance from either of their parents. This may happen by the transmission of the seeds by wind or water, or by the parent bush, cross-fertilized by insect-agency, having died out. In looking for hybrids it must be remembered that frequently they do not show exactly intermediate characters, but often bear a close resemblance to one or other of the parent species. Such forms can be detected only by careful study, and an intimate acquaintance with specific characters.

The species which most frequently hybridise are necessarily those whose period of flowering synchronises, but hybrids also occur between species which do not usually flower at the same time, and must have arisen from the rare accident of one or other of the parents having flowered at an abnormal period. Such hybrids (of which *S. triandra-cinerea* Wimm., not yet detected in Britain, is an example) must always be rare. Amongst hybrids which have occurred in Britain, but which have usually escaped recognition, are those between *S. cinerea*, *S. aurita*, and *S. Caprea*. Of these, that between the first two seems to be by no means uncommon, but the *aurita-caprea* and the *cinerea-caprea* hybrids are rarer. From the close relationship of their parents, all of them may readily be passed over. A number of others might be mentioned, but as on this occasion I wish only to call the attention of British botanists to the necessity for an increased study of the Willows, I abstain from doing so. In conclusion, I may add that I shall at all times be glad to examine good specimens.

Annat Lodge, Perth, N. B.

# BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.

By James Britten, F.L.S., and G. S. Boulger, F.L.S.

(Continued from p. 49).

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**Hawkes, Rev. Henry** (1805–1886): b. Dukinfield, Cheshire, 1st Feb. 1805; d. Liverpool, 29th Jan. 1886. M.A.? Glasgow. F.L.S., 1842. At Portsmouth, 1833–1871. Proc. Linn. Soc. 1885–6, 143. Portr., Portsmouth Public Library.

**Hawkins, Ellen** (fl. 1854–1868). Bot. appendix, Robertson's 'Handbook to the Peak,' 1854; ed. 2, 1868.

**Hawkins** (or **Hawkeens**), **John** (fl. 1739). Surgeon. 'Peruvian Bark-tree' (plate). Linn. Trans. iii. 60.

**Haworth, Adrian Hardy** (1768–1833): b. Hull, 1768; d. Queen's Elm, Chelsea, 24th Aug. 1833. Entomologist. F.L.S., 1798. Lived at Cottingham, near Hull, 1812–1817; at Little Chelsea, 1817–1833. A founder of Hull Bot. Garden. Discovered *Cyperus fuscus* at Chelsea. 'Observations on *Mesembryanthemum*,' 1794. 'Synops. pl. succulent.,' 1812–1819. 'Saxifragearum Enumeratio,' 1821. Pritz. 138; Jacks. 556; Mag. Nat. Hist. vi. 562; ix. 447; Cott. Gard. vi. 157; R. S. C. iii. 235; Gent. Mag. 1833, ii.; Faulkner, Chelsea, ii. 11. Litho. by Weld Taylor, from bust. Herbarium in Fielding's Herbarium at Oxford. *Haworthia* Duval.

**Haxton, John** (fl. 1792). A.L.S., 1798. Gardener, attached to Macartney's Embassy to China. Lasègue, 159. *Haxtonia* Caley = *Olearia*.

**Hay, William** (fl. 1699). Surgeon. Mus. Pet. no. 653. Hb. Sloane, 159.

**Hay, G. W. A. Drummond** (fl. 1833–1840). R. S. C. iii. 237.

**Hayes, Samuel** (fl. 1794). Of Avondale, Co. Wicklow. M.R.I.A. 'Treatise on Planting,' 1794.

**Hayes, Sutton** (d. 1863). Correspondent of Daniel Hanbury. Collected in Panama. Letters in possession of Mr. Thomas Hanbury. Journ. Bot. 1863, 254.

**Hayne, William Amherst** (1847–1873): b. Clifton, Bristol, 4th Oct. 1847; d. Catania, Sicily, 5th Jan. 1873. B.A., Camb., 1870. 'Flora of Moab,' Journ. Bot. 1872, 289. 'Letters,' 1873. Journ. Bot. 1873, 96; R. S. C. vii. 928.

**Harpur Crewe, Rev. Henry** (1830–1883): b. 1830; d. Drayton Beauchamp, Herts, 7th Sept. 1883. B.A., Camb., 1851. M.A., 1855. Rector of Drayton Beauchamp. Entomologist. Cultivated Crocuses ("the richest collection in Europe," Bot. Mag. t. 6168). Entomol. Monthly Mag. 1883, 118. Journ. Bot. 1883, 381. *Crocus Crewei* Hook. f.

**Heaton, Rev.** — (fl. 1650). Of Dublin. First Irish botanist. Pult. ii. 194; Threlkeld, 'Syn. Stirp. Hibern.' pref. c, i.; How; Merrett; Ray, Syn. ed. 3, 253.

**Helme, William** (1785–1834): b. Warrington, 27th March, 1785; d. Preston, 11th April, 1834. Warper. Entomologist. Member of Bot. Soc. meeting at 'Green Man,' Lord St., Preston. Collected plants with Mr. Tomlinson, surgeon. Whittle, Hist. Preston, ii. 291.

**Hemsted, Rev. John** (1746–1824): b. Lynton, Cambs., 11th June, 1746; d. Bedford, Feb. 1824. Contrib. to Eng. Bot. Correspondent of Smith.

**Henderson, Joseph** (d. 1866): d. Wentworth Woodhouse, Yorks., 22nd Nov. 1866. A.L.S., 1842. Superintendent of Earl Fitzwilliam's gardens. 'Germination of Ferns,' Mag. Zool. Bot. i. (1837), 333. 'Stigma of Mimulus and Diplacus,' Ann. & Mag. vi. (1841), 51. 'Equisetum,' Linn. Trans. xviii. 1841, 567. Pritz. 140; Proc. Linn. Soc. 1866–7, xxxv.; R. S. C. iii. 273; Gard. Chron. 1866, 1138. *Hendersonia* Berkeley.

**Henderson, Logan** (fl. 1787). Botanist to the Tsar. In Crimea, 1787. Cott. Gard. viii. 187.

**Henfrey, Arthur** (1819–1859): b. Aberdeen, 1st Nov. 1819; d. Turnham Green, Middlesex, 7th Sept. 1859. A.L.S., 1843. F.L.S., 1844. F.R.S. Prof. of Bot., King's Coll., London. 'Outlines of . . . . Bot.,' 1847. 'Rudiments of Botany,' 1849. 'Vegetation of Europe,' 1852. Pritz. 140; Jacks. 557; Proc. Linn. Soc. 1859–60, 23; R. S. C. iii. 275; Cott. Gard. xxii. (1859), 385, quoted from 'Athenæum.' *Henfreya* Lindl.

**Hennedy, Roger** (1809–1877): b. Carrickfergus, Belfast, Aug. 1809; d. Glasgow, 22nd Oct. 1877. Prof. Bot., Anderson Univ., Glasgow. 'Clydesdale Flora,' 1865; ed. 4, 1878, with portr. Jacks. 249; Journ. Bot. 1877, 96; Pref. to 'Clydesdale Flora,' ed. 4; Top. Bot. 547. *Navicula Hennedii.*

**Henshall, John** (fl. 1845). Gardener to J. H. Schröder, Tooting. 'Cultivation of Orchidaceous Plants,' 1845. Pritz. 141; Jacks. 138.

**Henslow, Rev. John Stevens** (1796–1861): b. Rochester, 6th Feb. 1796; d. Hitcham, Suffolk, 16th May, 1861; bur. Hitcham. B.A., Camb., 1818. M.A., 1821. F.L.S. F.G.S. Prof. Mineralogy, Cambridge, 1822; of Botany, 1825. Vicar of Cholsey, Berks, 1832. Rector of Hitcham, 1837. 'Principles of . . . . Bot.,' 1836. Pritz. 141; Jacks. 558; R. S. C. iii. 296;

Memoir by L. Jenyns, 1862, with portr.; Proc. Linn. Soc. 1861, xxv.; Gard. Chron. 1861, 505, 527, 551; Gent. Mag. ii. 90; Journ. Hort. i. (1861), 138; Life of Darwin, i. 168; Trans. Bot. Soc. Edinb. vii. 196. Portr. in Ipswich Museum series. Bust in Kew Museum. *Henslowia* Wall.

**Henslow, F. H.** [*see* Hooker, F. H.]

**Herbert, Hon. and Rev. William** (1778–1847): b. 12th Jan. 1778; d. Hereford St., London, 28th May, 1847. B.A., 1798. M.A., 1802. D.C.L., 1808. B.D., 1840. M.P., 1806–1812. Rector of Spofforth, Yorks., 1814. Dean of Manchester, 1840. 'Amaryllidaceæ,' 1837, with plates by author. 'Crocorum Synopsis,' Bot. Register, 1843–1845. Pritz. 141; Jacks. 558; R. S. C. iii. 305; Gard. Chron. 1847, 372; 'Garden,' xxviii. p. 400; Proc. Manch. Lit. Phil. Soc. xxv. 43. *Herbertia* Sweet.

**Heron, Andrew** (d. 1729): d. Bargally, Kirkcudbright, 1729. Lived at Bargally from 1690. Loudon, 'Arboretum,' i. 95.

**Hesketh** (or **Hasket**), **Thomas** (1561–1613): b. Martholme Hall, Blackburn, Lancashire, 1561; d. Clitheroe, 7th Dec. 1613. "A painefull chirurgion and simplist," Parkinson. Practised as physician and surgeon at Clitheroe. Correspondent of Johnson and Parkinson. Pult. i. 194; Johnson, Ger. Em. 241, 780, 1629, &c.; Parkinson, 'Theatrum,' 766, 1015, &c.; 'Palatine Note-book,' v. (1885), 7.

**Heward, Robert** (1791–1877): b. 1791; d. Wokingham, Berks., 24th Oct. 1877. F.L.S., 1836. In Jamaica, 1823–1826. 'Ferns of Jamaica,' Mag. Nat. Hist. 1838. Pritz. 143; Jacks. 370; Journ. Bot. 1877, 380; R. S. C. iii. 342; Lasègue, 266, &c.; Gard. Chron. 1877, ii. 571. Herbarium at Kew. *Hewardia* J. Sm. = *Adiantum*. *Hewardia* Hook.

**Hey, Mrs.** (fl. 1833). 'Moral of Flowers,' 1833. Jacks. 214.

**Heyne, Benjamin** (d. 1819): d. Vappera, Madras, 6th Feb. 1819. M.D. F.L.S., 1813. Bot. Mag. 1738. R. S. C. iii. 345. *Heynea* Roxb.

(To be continued.)

## *GNAPHALIUM ULIGINOSUM* L., VAR. *PILULARE* WAHL.

By Alfred Fryer.

Last October I found a *Gnaphalium* near Chatteris, growing amongst wheat-stubble, which had been sown with grass and clover in the preceding spring. The soil on which the plant grew was a hot, sandy gravel, with only slight traces of the original covering of peat intermixed throughout the cultivated surface, resting on a deep bed of well-drained fen-gravel holding no water within six or seven feet of the surface. The grass-seeds had been drilled across the rows of wheat so that the rows of each crop were at right angles. Both soil and position of the rows are thus exactly described, because these two points are essential to the argument of this note.

My attention was drawn to the plant by the close resemblance it bore to specimens recently distributed by the Exchange Club as *G. pilulare* Wahl.; on gathering it, my first impression was fully confirmed by the examination of the seeds, which were well marked by numerous "hair-like papillæ." Stimulated by this discovery of a new locality for a plant only once previously recorded as an inhabitant of Cambridgeshire, I carefully searched the ground for additional specimens, but although hundreds of plants presented the same external facies and dwarf habit of growth, I only succeeded in finding two or three examples with the typical achenes that mark *G. pilulare.*

One of these I sent to my friend Mr. Bennett, who amply confirmed my identification, saying:—"The *Gnaphalium* is exactly *G. pilulare* Wahl.—I have compared it with his plate in his Fl. Lapponica, and the *habit* and fruit of your specimen are so alike that I cannot put a ? to it." Being now fully satisfied as to the name of my plant, the next step was to ascertain, as far as possible, its relationship to the typical *G. uliginosum*, and its predial rank in the fens; and here I may say that I regarded the form as specifically distinct from *G. uliginosum*, and as a *corn-field casual* introduced with the grass-seed with which it grew.

A very slight examination of the locality clearly proved that *G. pilulare* had not been sown either with the wheat or the grass, (as it never occurred in the drill-rows, and but very rarely in the square interspaces between the rows; so rarely, indeed, that a lengthened search only produced three or four additional specimens), so that the plant, if introduced, was evidently established to some degree, and had descended from parent-plants which grew and seeded on the ground where it occurred. In the hope of getting additional evidence that might bear on this point, I examined the surrounding fields, in all of which *G. uliginosum* grew abundantly, and although many plants had exactly the facies of *G. pilulare*, none had the peculiar achenes. This showed that the plant could not rank as a colonist, but probably was a "casual" of recent introduction, so recent that it had not time to become carried beyond the field in which it was first accidentally sown with some preceding crop.

Here the question might have rested, had it not been for the remarkable distribution of *G. uliginosum* throughout the stubble in which *G. pilulare* grew. The former plant did not grow all over the wheat-stubble alike, but in *little patches*, evidently the result of some single plant having here and there escaped the weeding of the crop which occupied the field in the preceding year, and so had been enabled to ripen its seeds and scatter them for a short distance around. But then I remembered that in no single instance had I found *G. pilulare* away from one of these patches, nor had I found more than one plant in a patch—with perhaps a single exception. How was it, then, that the one form could produce dozens of plants in a patch, and the other only one? The conclusion seemed to me inevitable that *both forms sprang from one individual seed-plant* in each patch, and that *G. pilulare* is not even a variety, but only a *state* of *G. uliginosum*, incapable of reproducing its peculiarities from seed. Else some individuals of it ought to have formed little patches, just as the typical *G. uliginosum* did.

It now remains to sow seeds of the supposed variety, and grow them on *damp* soil: if they then produce their like, some other explanation must be sought. But, until this is done, I shall look upon *G. pilulare* as a *state* of *uliginosum* produced by local conditions of dry soil and climate, and by which only one seedling out of hundreds is affected so as to produce achenes with hair-like papillæ. Has any botanist met with *pilulare* year after year in the same locality in *both wet and dry seasons?*

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# FURTHER NOTES ON THE KERRY FLORA.

By Reginald W. Scully.

In the list which follows I have included the more interesting plants found during a trip to Kerry last summer. The ground gone over was too varied for detailed description; ten days were, however, spent in the neighbourhood of Killorglin, near the mouth of the Laune, a river well known as draining the Lakes of Killarney. Killorglin is now connected by rail with Killarney, and forms a good centre for a district hitherto apparently neglected by botanists. Trips were also made to Castlegregory and Kerry Head, the latter a remote and very exposed district. Another day was spent examining the Slieve Mish Mountains, and finally, the neighbourhood of Killarney and Tralee were further explored with good results.

Perhaps the most interesting plant found was *Carex aquatilis*. It grew along the banks of a small stream that enters Caragh Lake near the head, and on the west side of that lake. This extends the southern range of this plant to just 52°, and is especially interesting as increasing the group of such northern plants as *Scirpus rufus*, *Listera cordata*, *Carex dioica*, *Poa alpina*, &c., which find their southern British limit in Kerry. Three counties are now known in Ireland for this *Carex*—Roscommon, Donegal, and Kerry. It seems strange, as Mr. Bennett points out (Journ. Bot. 1889, p. 27), to find this northern plant absent from Dr. Lange's new edition of the 'Danish Flora,' seeing it ranges from N. to S. Ireland. Another station was discovered for *C. Boenninghauseniana*, its second, I think, in Ireland; while *C. muricata*, *C. limosa*, and *C. punctata* were also found in new localities. Few counties are better represented in this family, though *C. muricata* seems very rare here, as indeed throughout Ireland; while *C. disticha* is, so far, a desideratum. Kerry, however, furnishes several other instances of the kind—*Anthriscus sylvestris* and *Pimpinella Saxifraga*, for instance, are both desiderata in my Kerry lists; the latter is the more surprising, as the extensive limestone tracts would seem to offer it a suitable habitat, and the closely-allied *Pimpinella major* is widely spread through the county.

Among other critical plants gathered were *Thymus Chamædrys* and *Sparganium neglectum;* neither of these segregates appear to have been recorded from Ireland before. *Ranunculus Godronii, Trifolium filiforme, Ruppia spiralis, Eriophorum latifolium, Equisetum trachyodon,* and *E. hyemale* were also gathered, with several new stations for *Rhynchospora fusca* and *Isoetes echinospora.*

Mr. Arthur Bennett has very kindly looked through my Potamogetons; these include a very large form of *P. rufescens,* queried for var. *maximus* (Röhlz), *P. nitens,* with its var. *curvifolius, P. Zizii,* and others, on which he sent me some interesting notes, especially on Syme's var. *linearis* of *P. polygonifolius.* This plant in its most extreme form produces only long capillary leaves, and passes from this almost imperceptibly into *P. natans,* with floating leaves plicate at the base. Both Mr. Bennett and Mr. Fryer say that this variety must be referred to *P. natans,* instead of *P. polygonifolius.* Dr. Tiselius, in Sweden, and Rev. T. Morong, in America, agreed on this point with Mr. Bennett when he sent them specimens three or four years ago. *P. linearis* seems a barren state, and herein lies all the difficulty with this and another plant which grew, quite submerged, in the midst of dense masses of "*linearis,*" and is very puzzling. I marked the labels "*P. polygonifolius,* submerged form." Mr. Fryer, who saw the plant, says, "I should so name it . . . . Is not this form Syme's *pseudo-fluitans,* if that name does not represent *fluitans?* It seems nearer to the American *P. Lonchites* than any I have seen before from Ireland." Mr. Bennett says that, with only immature specimens before him, a satisfactory name is not possible. Though gathered in the middle of August, there was no sign of its flowering.

Another puzzling plant is a long, straggling, dark-leaved form growing abundantly in the River Laune. Mr. Fryer says it is impossible to see this plant without thinking of Syme's *P. Lonchites,* though he cannot make it agree with the Boyne *Lonchites.* He considers it one of the doubtful forms of *heterophyllus* with amplexicaul leaves. Mr. Bennett has little doubt as to its being a form of *P. Zizii.* I shall hope to see more of these plants next season.

Two interesting Kerry records which I failed to verify are *Sisyrinchium angustifolium* and *Lathyrus maritimus.* The *Sisyrinchium* had been gathered near Kilcolman Abbey, Milltown, about four miles east of Killorglin. Through the kindness of Lady Godfrey, I was shown the spot where she had found it in 1887, and again several years before that. The locality is a coarse, boggy pasture, about a mile from the Abbey, and though we looked long and closely in the restricted portion of the field it had occurred in, our search failed to discover any trace of the plant. Very few plants were noted in 1887, but whether the *Sisyrinchium* has become extinct, or is only dormant, the next year or two will probably show. I have no doubt that this is the same place where the *Sisyrinchium* was gathered by my friend Mr. A. G. More, as recorded in Journ. Bot. 1882, p. 8. *Lathyrus maritimus* appears first in Smith's list of 104 Kerry rarities as occurring on the south point of Inch Island in considerable quantities; this would be about 1750. It was gathered "on the sand-hills, Bay of Castlemain," by Mackay in 1804, and this station is further supported by the plant appearing in a collection bought by Mr. R. M. Barrington from a coastguard of the place, labelled "Sand-hills, Killorglin Bay, 1845," Journ. Bot. 1877, p. 179. Mr. Hart searched the Inch locality, which lies on the north side of the bay, in 1883 fruitlessly, and the same result attended my searches on the sand-hills along the south side, but it is possible the habitat may have been destroyed by the rapid changes these sand-hills are subject to; I noticed that a signal-tower, marked on my Ordnance-sheet as well on the land, was now more than fifty yards out in the sea, a change that must have taken place within about sixty years.

In the following list I have not repeated the localities, save in a few instances, nor the plants, unless from new localities, recorded in my Notes in Journ. Bot. for March, 1887. Plants marked I. are additions to District I. of the 'Cybele Hibernica' and its Supplement.

*Ranunculus Godronii* Gren.? I. Bog-ditch, Muckross, near old farm-buildings. This plant agrees with specimens in Mr. More's herbarium, labelled *R. radians* by Mr. Hiern, and also with others labelled *Godronii*. — *R. floribundus* Bab. I. Muckross, rarer than *R. peltatus*. — *R. Baudotii* Godr. Abundantly at Blennerville, near Tralee. Castlegregory. Banna. — *R. Lenormandi* F. Schultz. Killorglin, near Caragh Lake and Rossbehy, many places about Killarney, &c. — *R. bulbosus* L. Rare in Kerry; occurs, however, on limestone about Killarney, and on most of the sand-hills round the coast.

**Papaver somniferum* L. Abundantly in waste ground at new hotel, Killorglin, and in old quarries at Ardfert. — ‡*P. Rhœas* L. Near Cathedral, Killarney.—†*P. dubium* L. The only poppy so far noted as growing in other than the most obviously suspicious stations. Several places about Castlegregory. The Magharee Islands, abundant about Banna. Potato-field near Killarney.

*Fumaria pallidiflora* Jord. I. Near River Laune, in several places. Killorglin. Castlegregory.—*F. confusa* Jord. Muckross. Spa near Tralee. Castlegregory.

**Cheiranthus Cheiri* L. Abundant on walls of Ardfert Abbey.

*Arabis sagittata* DC. Clogherbrian, &c., near Tralee. Castlegregory.

*Sisymbrium Thaliana* Hook. Several places around Killarney. —*S. Alliaria* Scop. Ballycarty and Ballyseedy, near Tralee, several places about Killarney.

†*Brassica nigra* Koch. Abundant near Fenit, Tralee. Ardfert. Ballyheige.

*Viola canina* L. Brown Islands, Lower Lake, Killarney.

‡*Silene anglica* L. Near corn-field, Killorglin, and road-side, Rossbehy; very rare in the county.

‡*Lychnis alba* Mill. Castlelough Bay, Lower Lake, Killarney; very rare in Kerry. — *L. diurna* Sibth. About Muckross and Killarney. Kerry Head, in several places.

*Cerastium semidecandrum* L. Sand-hills, Rossbehy and Ballyheige.

*Sagina maritima* Don. Rossbehy. Killorglin. Magharee Islands.

Kerry Head.—*S. ciliata* Fr. I. Near Upper Lake, Killarney. Tralee. Banna, apparently common.

†*Althæa officinalis* L. Sparingly near Rossbehy. Clogherbrian, near Tralee; in both cases near cottage-gardens.

†*Lavatera arborea* L. I have this noted from several spots around the Kerry coast, usually in suspicious stations; however, I cannot but think it native on this coast.

‡*Malva moschata* L. Road-side between Ballymalis Cas and Killorglin.

*Radiola linoides* Gmel. Near Rossbehy and Caragh Lake. Killorglin. Castlegregory. Kerry Head, abundant.

†*Erodium moschatum* L'Hérit. Several places about Castlegregory and Ardfert.

*Euonymus europæus* L. Common about Killarney Lakes. Ballycarty and Ballyseedy, near Tralee.

*Ononis repens* L. Castlegregory.

*Trifolium medium* L. Limestone bluffs E. of Ballycarty, near Tralee.—*T. filiforme* L. I. Near the Spa, Tralee.

*Vicia hirsuta* Koch. Aghadoe, near Killarney. Ballymalis Castle. Ardfert.— *V. sylvatica* L. Rough Island and Ross Island, Killarney.

**Prunus Padus* L. Muckross, in several places; near Foley's Glen, Tralee.

*Geum rivale* L. Mangerton. Slieve Mish Mts.

*Alchemilla vulgaris* L. Limestone pasture near Castle Island; seems very rare in Kerry.

*Rosa spinosissima* L. Common on sand-banks round coast. Inland it occurs in several places about Lakes of Killarney, and a pretty variety with double pink flowers was gathered in a damp copse near River Laune. — **R. rubiginosa* L. Near Castle Island and Ballymalis Castle, probably planted.

*Saxifraga Geum* L. Slieve Mish Mts.—*S. hirsuta* L. Fine and typical on the Cormagh Cliffs, Slieve Mish.—*S. umbrosa* L. Slieve Mish, &c., with many intermediate forms. — *S. decipiens* Ehrh. Slieve Mish.

*Drosera anglica* Huds. Near Caragh Lake. Bogs near Castle Island. Several spots about Killarney; rarer in Kerry than the following. — *D. intermedia* Hayne. In above localities. Castlegregory, near River Laune, &c.

*Carum verticillatum* Koch. Rossbehy. Killorglin. Caragh Lake. Milltown. Gap of Dunloe. Glenflesk. Anascaul, on Dingle Road; common in Kerry. — ‡*C. Petroselinum* Benth. Abundant on walls of Ardfert Abbey.

*Sium erectum* Huds. Near Killarney. Barrow. Banna. Castlegregory.

*Pimpinella major* Huds. Several places about Muckross and Tralee. By River Maine; or abundant E. of Castle Island. Near Camp on road to Castlegregory, and again at latter place. Local, but abundant, whereas *P. Saxifraga* seems absent.

‡*Anthriscus vulgaris* Pers. Road-side near Tullig, Killorglin; very rare in Kerry.

**Sambucus Ebulus* L. By River Laune, near Killorglin.

*Galium sylvestre* Poll. Abundant on limestone bluffs about Middle Lake, Killarney.

†*Scabiosa arvensis* L. Stony pasture, Upper Glenflesk. Seems very rare in Kerry; possibly introduced.

*Antennaria dioica* R. Br. Ridge of Slieve Mish, about 2100 ft.

*Gnaphalium sylvaticum*. Several places about Killarney. Glenflesk.

‡*Anthemis Cotula* L. Fields about Ballymalis Castle, &c. — *A. nobilis* L. Rossbehy. Killarney. Glenflesk.

‡*Chrysanthemum segetum* L. Abundant in fields near River Laune.

*Cnicus pratensis* Willd. Near Ardfert. Rathmore.

‡*Centaurea Cyanus*. Near Tullig. Killorglin; and among flax, Farranfore.

*Wahlenbergia hederacea* Reichb. Very abundant both sides of River Flesk, from River Finnow to Brewsterfield Bridge.

*Vaccinium Oxyococcos* L. Sparingly in a large and very wet bog two miles west of Castle Island.

*Primula veris* L. Ross Island, Killarney. Near Spa, Tralee. Ballyheige; rare in Kerry.

*Lysimachia vulgaris* L. Wet wood near Muckross Abbey. Ross Island, in several spots. Ballymalis Castle.

*Microcala filiformis* Link. The wet, miserable summer we had last year apparently agreed with this plant well. The largest specimen I noted in 1887 was scarcely 4 in. high, and almost unbranched; last year the same locality (Journ. Bot., March, 1887) gave me specimens 9 in. high, with branches 5 in. in length.

*Gentiana campestris* L. Kerry Head.

*Convolvulus arvensis* L. Near Spa, Tralee. Castlegregory.

*Solanum Dulcamara* L., var. *marinum* Bab. Rossbehy. Tralee Bay, in several places. Magharee Island.

†*Hyoscyamus niger* L. Magharee Island, very abundant.

‡*Verbascum Thapsus* L. Sparingly in one spot, Killarney; very rare in Kerry.

**Linaria viscida* Mœnch. At intervals on the ballast of the railway from where it enters the county to Castle Island.

*Bartsia viscosa* L. Like *Carum verticillatum*, widely spread throughout the county, but rarer inland; it occurs, however, in several spots about Killarney, Glenflesk, and Glencar.

‡*Verbena officinalis* L. Many spots about Tralee, Castlegregory, &c.

*Mentha Pulegium* L. Rossbehy. Milltown. Tullig, near Killorglin.

*Thymus Chamædrys* Fr. I. Banna sand-hills.

*Calamintha officinalis* Mœnch. Muckross. Clogherbrian, near Tralee.

*Stachys Betonica* Benth. Field S. of Firies, and again N. of River Maine for some distance up lower slopes of Slieve Mish Mts.; a rare plant in Ireland.

‡*Lamium hybridum* Vill. I. Killorglin.

**Chenopodium Bonus-Henricus* L. A few plants by Deenagh Bridge, near Killarney; appears to be very rare in the county.

*Euphorbia hiberna* L. Glens N. and E. of Castle Island; common in county further south.

**Humulus Lupulus* L. In a hedge a mile or two from Killorglin, on Killarney Road.

‡*Salix purpurea* L. Muckross.—‡*S. Smithiana* Willd. Muckross, Ross Island, &c.—*S. herbacea* L. Slieve Mish Mts., abundant.

*Empetrum nigrum* L. Common as a mountain plant, and descends to within a few feet of sea-level at Kerry Head.

*Neottia Nidus-avis* Rich. In many spots by road-side near Tore Mts. Muckross shrubberies, in several places. Ross Island. Killarney.

*Cephalanthera ensifolia* Rich. About half-a-mile E. of Brickeen Bridge, Muckross.

*Orchis pyramidalis* L. Abundant in meadows near Mt. Hawk, the Spa, and Blennerville, near Tralee. Ardfert. Several spots about Castlegregory. Ballyheige.—*O. latifolia* L. Dinish Island, Killarney. Clogherbrian. Tralee. There seems little to distinguish this plant from *O. incarnata*, except its spreading leaves. Are there really two species?

*Habenaria conopsea* Benth. Sparingly at Castlegregory. — *H. albida* R. Br. Sparingly along banks of River Flesk, and more abundant where River Finnow joins it. — *H. viridis* R. Br. Near Milltown. Ardfert. Castlegregory. — *H. bifolia* R. Br. and *H. chloroleuca* Ridley. Both widely distributed; *bifolia* seems the rarer.

**Convallaria majalis* L. Observed growing sparingly in Muckross shrubberies, in one place only, west of the Abbey, where there is every reason to suppose it was planted. I would hardly have referred to it here, had not Smith reported it as growing in the woods round the lakes, where I can only find *Allium ursinum*. I am afraid this record must be classed among the author's numerous errors.

†*Allium Scorodoprasum* L. Thinly scattered through the Muckross shrubberies, and found growing in great abundance in the "Green," Sir T. Denny's park, Tralee, and along the adjoining stream. Could Smith have possibly mistaken this conspicuous plant, which he does not record, for *Polygonum Bistorta*, which he places in the above locality?

*Sparganium neglectum* Beeby. I. Clogherbrian, near Tralee, &c. Mr. Bennett kindly sent some fruits to Mr. Beeby, who confirmed the plant, but found the seeds sterile. It seems as common in Kerry as *S. ramosum*.

*Potamogeton natans* L. f. (*P. polygonifolius* var. *linearis* Syme). Abundant in Long Range. — *P. polygonifolius* Pour. Submerged form? in several spots, with the above.—*P. rufescens* var. *maximus* Röhlz.? Muckross boat-harbour, and bay outside it, Lower Lake, Killarney. Bog-hole, Ross Island.—*P. nitens* Web., var. *curvifolius* Hartm. Sparingly in lake, Castlegregory.—*P. Zizii* Roth. I. Doo Lake, Muckross demesne; and a form plentiful in River Laune from tidal influence to near the Killarney Lakes. — *P. flabellatus* Bab. I. Castlegregory. Blennerville.

*Ruppia spiralis* Hartm. I. Stream out of Castlegregory Lake, and again in the lake, N.W. end. — *R. rostellata* Koch. Common around coast.

*Zannichellia pedunculata* Reichb. I. Banna. Ballyheige.

*Eriocaulon septangulare* With. Plentiful, but not seen flowering, in Caragh Lake; flowering sparingly in Loch Beg, a small lake near it. Found in both localities by my friend Mr. A. G. More.

*Eriophorum latifolium* Hoppe. I. Banks of River Laune, about a mile W. of Beaufort Bridge.

*Rhynchospora fusca* R. & S. Bog near Bunclash School-house, Caragh Lake. Two places near Killorglin. Near Mulgrave Police-barracks. Bawnaskehy Bog, Castle Island.

*Carex dioica* L. Clogherbrian, Tralee, Castlegregory. — *C. pulicaris* L. and *C. arenaria* L. Common. — *C. teretiuscula* Good. Clogherbrian and Castlegregory.—*C. paniculata* L. and *C. vulpina* L. Not rare.—*C. muricata* L. Sparingly on limestone bluffs, Clogherbrian.—*C. divulsa* Good. Many places about Killarney.—*C. echinata* Murr. and *C. remota* L. Common.—*C. Boenninghauseniana* Weihe. I. Several tufts in a wet wood near Muckross Abbey. The presence of abundant *C. paniculata* and *C. remota* growing together induced me to make a close search for their reputed hybrid.—*C. curta* Good. In a small bog near River Finnow, where it joins the Flesk. — *C. ovalis* Good. Very abundant. — *C. stricta* Good. Several places about Lakes of Killarney, &c. — *C. acuta* L. An abnormal form growing near the Lower Lake, Killarney, not far from mouth of River Flesk. — *C. rigida* Good. Mangerton. Slieve Mish Mts.— *C. aquatilis* Wahl. I. Banks of small stream near head of Caragh Lake, W. side; confirmed by Mr. Bennett. — *C. Goodenowii* Gay. Abundant and very variable. — *C. glauca* Murr. Common. — *C. limosa* L. Near Killorglin; bog W. of Castle Island. Castlegregory, several places. — *C. pilulifera* L. and *C. præcox* Jacq. Common. —*C. pallescens* L. Many places about Killarney, and one luxuriant cluster found in Horse's Glen, Mangerton, at about 1200 ft.— *C. panicea* L. Common.—†*C. pendula* Huds. In great abundance, Ballyseedy demesne, probably planted; and in grounds at Kilcoleman Abbey, where Lady Godfrey told me it had been introduced from Muckross with Rhododendrons. The *Carex* seems to have died out at Muckross. — *C. strigosa* Huds. Very abundant with the above at Ballyseedy, and sparingly at Chute Hall. — *C. sylvatica* Huds., *C. lævigata* Sm., *C. binervis* Sm., and *C. distans* L. Common. —*C. punctata* Gaud. On wet, rocky ledges, Kerry Head, between Ballyheige and Coastguard-station, scarcely out of reach of spray.— *C. fulva* Good., *C. extensa* Good., and *C. flava* L. Common.— *C. Œderi* Ehrh. Brown Island, Lower Lake, Killarney. — *C. filiformis* L. Near Lower Lake, not far from River Laune. — *C. hirta* L. Not common.—*C. riparia* Curtis. Muckross, and near Tralee. — *C. rostrata* Stokes and *C. vesicaria* L. Common. The above list is given to show how fully represented the *Carices* are in Kerry; a few others will probably be added.

*Milium effusum* L. Near Tunnel Rock, Upper Lake, and Glen in Deer-park, Killarney. Wood N.E. end of Caragh Lake; sparingly in the "Green," Tralee.

*Phleum arenarium* L. Castlegregory, abundant. Banna sandhills.

*Deschampsia cæspitosa* Beauv., var. *pseudo-alpina* Syme. Mangerton. Slieve Mish Mts.

*Trisetum flavescens* Beauv. Not rare about Killarney; fields near River Laune. Spa, Tralee. Ardfert, &c.

*Avena pubescens* Huds. Muckross. Clogherbrian, Tralee. Castlegregory.

*Koeleria cristata* Pers. Common on coast.

*Catabrosa aquatica* Beauv. Near Killarney and River Laune. Several spots about Tralee.

*Glyceria maritima* Wahl. Common round coast.

*Festuca rigida* Kunth. Several places on coast, rarer inland; noted, however, at Killarney.—*F. loliacea* Huds. Not rare on coast. —*F. myurus* L. Common on walls, &c., about Killarney. Tralee. Killorglin. Ballyheige, &c.—*F. sylvatica* Vill. Sparingly on rocky ledges by road-side, Upper Lake, Killarney.

*Agropyron acutum* (non R. & S.). Castlegregory. — *A. junceum* Beauv. Common on coast.

*Lepturus filiformis* Trin. Castlegregory.

*Polystichum Lonchites* Roth. I was glad to find that Mr. Carroll's record of this rare Irish plant still holds good for Mangerton, one small but healthy plant rewarding a somewhat arduous climb; I trust that others who may happen to find this interesting plant will not disturb it. — *P. lobatum* Presl. Horse's Glen, Mangerton, in several places; seems a rare fern in Kerry.

*Lastræa Thelypteris* Presl. Cromaglaun; at the base of Muckross and Ross Island, Killarney.—*L. Oreopteris* Presl. Cromaglaun. Banks of Flesk, and lower slopes of Mangerton. Near Castlegregory.

*Ophioglossum vulgatum.* Near Muckross Abbey and Ross Island.

*Botrychium Lunaria* Sw. On an old fort near Castlegregory.

*Equisetum maximum* Lam. Common around Lakes of Killarney. —*E. sylvaticum* L. Lower slopes of Mangerton; rare in the county. —*E. hyemale* L. Several spots along River Flesk to Brewsterfield Bridge, and along River Laune.—*E. trachyodon* R. Br. I. Gathered on banks of River Laune, not far from Ballymalis Castle.

*Isoetes echinospora* Dur. Middle Lake and Back Channel, Killarney. Abundant in most of the lakes S. of Killorglin. Lake Beg, near Caragh Lake. In a lake S. of Castlegregory.

*Chara aspera* Willd. Near Rossbehy. Castlegregory, &c. — *C. contraria* Kentz. I. Near Rossbehy. — *C. hispida* L. Near Rossbehy. Castlegregory, &c.—*C. vulgaris* L., var. *longibracteata* Kuetz. Blennerville. Banna.

My best thanks are due to Mr. Arthur Bennett, Messrs. Groves, and my friend Mr. A. G. More, for their kindness in looking over many doubtful plants.

## JAMES BOWIE.

[We take the following sketch from an interesting paper on the "Personalia of Botanical Collectors at the Cape," read as an Annual Address before the South African Philosophical Society, by Prof. Macowan, on July, 28th, 1886. It corrects, in some particulars, the previous notices of Bowie.]

Bowie was the son of a London seedsman, carrying on business in a humble way at the west end of what is now Oxford Street. He entered the service of the Royal private establishment at Kew, in 1810, and after four years' work was detached on collecting service with Allan Cunningham, afterwards well known as a discoverer of new Australian plants. They first went to Rio, and remained travelling and collecting in Brazil until 1817. Cunningham was then ordered to New South Wales and Bowie to the Cape of Good Hope. Bowie remained here till 1822, collecting and cultivating sufficiently for export to Kew a large number of bulbous and succulent plants, forwarding seeds, and otherwise fulfilling the duties of collector. He states in one of his letters (November, 1826) that almost every Cape plant figured since 1817 was sent home by himself. This is far from being the case, but still his industry contributed largely to the greenhouse collections of Cape plants then in high fashion. One of the most notable of those he sent home was *Imantophyllum Aitoni* Hook, the beautiful Cyrtanthoid Amaryllid, well known to Grahamstown cultivators from its station in the Howison's Poort valley. Bowie, however, for prudential trade reasons, reported it from "Orange River."

In 1822 the Parliamentary vote for the corps of collectors for the Royal Gardens being reduced, Bowie was recalled, and spent some time at Kew, unattached, but engaged in arranging such dried plants as he had accumulated. He seems to have become incapable of regular horticultural work, and though several of his patrons did what they could for him, his want of application and business aptitude prevented his thriving. His great pleasure was to spend his time among the free-and-easy company of bar-parlours, recounting apocryphal stories of his Brazilian and Cape travels, largely illustrated with big snake and wildebeest adventures. In April, 1827, he returned to the Cape, with the intention of dealing in objects of natural history, especially Cape bulbs. As Villette had just sold off the greater part of his zoological collections, and was giving up his establishment at the corner of Wale Street and Long Street, Bowie hoped to take over the chief part of this export trade. His temper and want of perseverance and tact prevented his making anything out of the opportunity. He writes in a very dissatisfied strain of his prospects:—"There is not a snob, a tinker, or tailor, or any other ignorant ass here but is dealing in cats, dogs, and monkeys, and by the opposition to each other, and re-selling of specimens, the prices are raised far beyond their value, considering risk of sea voyage. There is even an officer of the army who has sometimes forty soldiers told off at a time to collect for him." Again, he falls upon the historic fathers of the Eastern Province with characteristic bitterness:—"I find Cape Town much the same, but so many of the rascally settlers in it that I have no inducement to join in chance company. Those wretches are ashamed of their radicalism, and swear through the world that they are pure, independent, respectable Englishmen." His hopes of finding employment as the manager of a botànic garden, then much talked of, but not started till some years subsequently, were disappointed, and he seems by all accounts to have led an aimless, irregular life, often in great poverty, always complaining of ill-treatments, lack of patronage and appreciation. It was his wont to boast largely of his services to science, forgetting that all he had done was to fetch and carry for pay. The vainglorious character of the man is well illustrated by the volumes of pen-and-ink tracings of the plants in the 'Botanical Magazine,' which he used to exhibit as original sketches of plants discovered by him. Towards the close of a wasted life he was, more of a matter of charitable commiseration than for any personal usefulness, employed as gardener by Mr. R. H. Arderne, of Claremont, in whose nominal service he died, 30th June, 1869.

Dr. A. H. Haworth coupled this collector's name with a series of plants originally forming part of the genus *Aloe*, but subsequent writers, deeming the grounds of separation insufficient, the name *Bowiea* was dropped. Dr. W. H. Harvey, who, as a resident of the Cape, had some knowledge of Bowie, resuscitated the name in a monotypic Eastern liliaceous genus. *Bowiea volubilis* Harv. is figured in the 'Botanical Magazine,' tab. 5619; it was not, however, discovered by the collector whose name it bears, but by Mr. Henry Hutton, in the neighbourhood of the old Katberg convict station, and has since been gathered in many other places, particularly in Kafirland.

## SHORT NOTES.

Marsupella Stableri Spruce.—Whilst botanizing in May last with Messrs. Sunderland and Byrom near Llyn Ogwen, I found a fine patch of this species in a gully ascending Y Tryfan, above Llyn Bochlwyd. Mr. G. A. Holt found it in fine condition on Cader Idris, in June, 1882. Mr. Stabler has also found it on Ben Mac Dhui, July, 1884. These, I believe, are the only stations for this rare species, with the exception of those already recorded—Bowfell, where it was discovered by Mr. Stabler, and Langdale Valley, where it was collected in quantity by Mr. Stabler and myself, and distributed in 'Hep. Brit. Exsicc.' I was again fortunate in finding in the Ogwen Valley abundance of the rare *Lejeunea microscopica* Tayl. in several stations.—W. H. Pearson.

A new British Festuca.—Last summer I found a grass growing on sandy soil, under trees, at Witley, Surrey, which at once struck me as peculiar. It varied in height from 2 to 4 ft.; the root-leaves being very numerous, capillary-triangular, and sometimes a foot in length; the upper stem-leaves flat, narrow (about 1 line broad), often rather recurved. It was recently included in a small parcel sent to Dr. Hackel, the well-known monographer of the genus, and the following is a translation of his report upon it:—"This is *Festuca heterophylla* Lam., a very interesting addition to the English flora, *for which it was previously quite unknown*. I have, indeed, in my Monogr. Fest. Eur., p. 130, described *F. heterophylla* as *F. rubra*, subspec. *heterophylla*; but must admit that I have not yet met with any certain transition-forms between the two, a fact which goes far to justify their specific separation. I will ask you to look up the differences in the above-named work (*l. c.*); I place most reliance on the 'ovarium apice hispidulum' and the 'folia triangularia, scabra' of *F. heterophylla*. Let me once more congratulate you on this nice discovery, which has greatly pleased me." Nyman gives the European range of the plant as from France, Belgium, and Germany (excepting the most northern parts) to Sicily, Dalmatia, and Macedonia. Doubtless it will be found elsewhere in Southern Britain.—EDWARD S. MARSHALL.

CALLITRICHE TRUNCATA GUSS. IN GLOUCESTERSHIRE. — A few evenings ago Mr. A. Bennett and I were looking over the pondweeds in the Boswell Herbarium, when we noticed a piece of *Callitriche truncata* Guss. mixed up with a plant bearing the following label:—"*Potamogeton pusillus*. Berkeley Canal, Gloucester, G. S. Wintle, Aug. 1867." As *Callitriche truncata* Guss. is one of the very few British plants that are altogether unrepresented in the Boswell Herbarium, there seems to be no chance of its having slipped from another sheet; it would, however, be highly desirable for local botanists to endeavour to find the plant afresh. There seems nothing inherently improbable in its occurring in such a locality.—FREDERICK J. HANBURY.

## *ARTICLES IN JOURNALS.*

*Bot. Centralblatt* (No. 5). — J. Bornmüller, 'Ein Beitrag zur Eichenflora des südöstlichen Europa.' — (No. 6). V. v. Borbás, *Tilia Richteri* Borb., n. sp. hybr. (*T. cordata* × *super-petiolaris*).— (Nos. 7, 8). J. Boehm, 'Stärkebildung in den Blättern von *Sedum spectabile*.'

*Bot. Gazette* (Jan.).—'Botany in the University of Philadelphia.' —E. L. Gregory, 'Development of Cork-wings on certain trees.'— Lester F. Ward, 'The King-devil' (*Hieracium prœaltum*).

*Bot. Notiser* (häft 1).—J. A. O. Skárman, 'Om *Alnus incana* f. *arcuata*.'—F. Svanlund, 'Anteckningar till Blekinges flora.'—K. F. Thedenius, 'Om *Potentilla thuringiaca* Bernh. i Sverige.' — H. Nordenström & E. Nyman, 'Vaxtgeografiska bidrag till Östergotlands mossflora.'—E. Ryan, 'Nogle Bemærkningar om *Brachythecium Ryani* Kaur.'—L. Ronell, 'Fungi aliquot novi, in Suecia lecti.'

*Bot. Zeitung* (Feb. 1, 8). — W. Zopf, 'Ueber Pilzfarbstoffe.'— (Feb. 15, 22). J. Reinke, 'Ein Fragment aus der Naturgeschichte der Tilopterideen' (2 plates).

*Bull. Soc. Bot. Belgique* (xxvi.: pt. 2).—E. Laurent, 'Recherches expérimentales sur la formation d'amidon dans les plantes.'—E. De Wildeman, 'Observations sur quelques Desmidiées' (1 plate).—T. Durand, 'Essai d'une Monographie des Ronces (Rubus) de Belgique.'—A. Wesmael, 'Revue des espèces du genre *Populus*.'—(xxvii.) E. Rodigas, 'Jean Jacques Kickx' (1842–1887: portrait).—A. De Vos, 'Coup d'œil sur l'histoire de la flore belge.' — E. De Wildeman, 'Observations algologiques.' — Id., 'Observations sur quelques faunes d'Algues terrestres épiphytes.' — F. Crépin, 'Rosæ Helvetiæ.' — F. Renauld & J. Cardot, 'Mousses nouvelles de l'Amérique du Nord.'

*Bull. Soc. Bot. France* (xxxv. Sess. extraord. à Narbonne: Feb. 1). —P. Oliver, '*Lathyrus tenuifolius*.'—L. Vincent, Obituary of Isidore Blanche (d. Dec. 11, 1887). — E. Mouillefarine, 'Une famille de Botanistes: les Thomas de Bex.'—P. Vuillemin, 'Les Pézizes des chancres des Conifères.'

*Bull. Torrey Bot. Club* (Feb.). — M. S. Bebb, 'White Mountain Willows.' — T. Morong, 'S. American Vegetation.' — T. Meehan, 'Gyno-diœcious Labiatæ.'—T. C. Porter, '*Gentiana alba* Mull.'

*Gardeners' Chronicle* (Feb. 2). — *Ixianthus retzioides* (fig. 19).—(Feb. 9). *Habenaria Macowaniana* N. E. Br., n. sp. — M. T. Masters, *Abies lasiocarpa* Hook. (figs. 23–32). — F. W. Burbidge, 'Plant Colour.'—(Feb. 16). *Eria marginata* Rolfe, n. sp.—(Feb. 23). *Vanda Kimballiana* Rchb. f., *Gladiolus Adlami* Baker, spp. nn.—H. M. Ward, 'Smut Fungi.'—*Abies bracteata* (fig. 44).

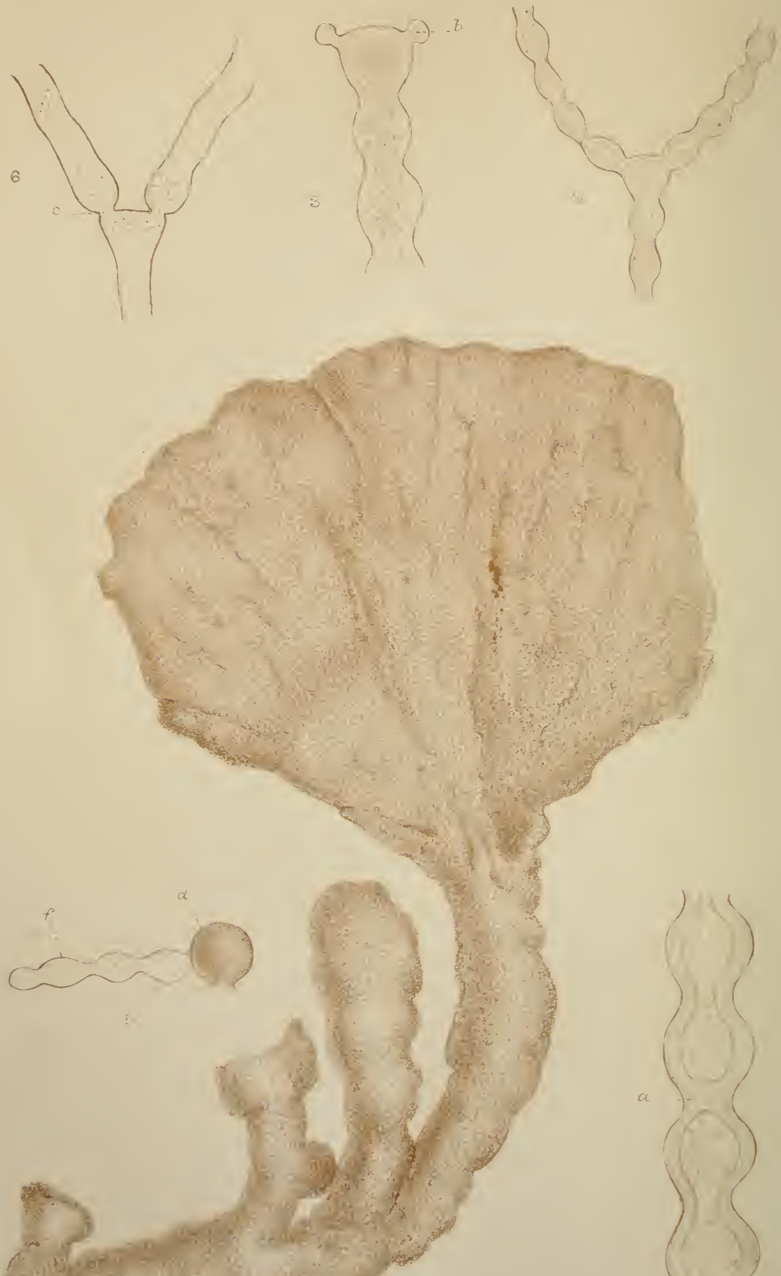
*Journal de Botanique* (Feb. 1). — N. Patouillard, 'Fragments mycologiques.'— —. Masclef, 'Etudes sur la geographie botanique du nord de la France.' — (Feb. 15). —. Masclef, 'Note sur le *Daucus hispidus*.'—E. Malinvaud, '*Ranunculus chærophyllos*.'

*Journ. Linn. Soc.* (xxv., 165–9: Feb. 2).—C. B. Clarke, 'Plants of Kohima and Muneypore' (*Kadsura Wattii*, *K. Championi*, *Silene vagans*, *Urena callifera*, *Elæocarpus Braceanus* Watt MS., *Uraria paniculata*, *Desmodium Wattii*, *Bauhinia tenuiflora* Watt MS., *Rubus calophyllus*, *Pyrus Kohimensis* Watt MS., *Kalanchoe rosea*, *Illigera villosa*, *Begonia Wattii*, *B. obversa*, *B. adscendens*, *Pimpinella flaccida*, *Silvianthus radiciflorus*, *Octotropis ? terminalis*, *Vernonia cylindriceps*, *Aster Wattii*, *Senecio Nagensium*, *S. Rhabdos*, *S. Dux*, *Swertia Wattii*, *Ipomæa Wattii*, *Lysionotus pubescens*, *Strobilanthus recurvus*, *S. pterygorrhachis*, *Asystasia pusilla*, *Eranthemum lateriflorum*, *Justicia anfractuosa*, *Pogostemon Wattii*, *Pilea minuta*, *Liparis distans*, *Bulbophyllum Clarkei* Reichb. f., *Habenaria urceolata*, *Campylandra Wattii*, *Panicum incisum* Munro MS., *Erianthus longisetosus* T. Anders., *Rottboellia Zea*, *Andropogon Schœnanthus*, *A. Munroi*, *A. pteropechys*, *Deyeuxia scabrescens* Munro MS., *Brachypodium Wattii*, *Polypodium crenato-pinnatum*, *P. Wardii*, spp. nn.).

*Journ. R. Microscopical Soc.* (Feb.).—W. West, 'List of Desmids from Massachusetts' (2 plates: *Closterium subdirectum*, *Xanthidium Tylerianum*, spp. nn.). — F. Castracane, 'Reproduction and Multiplication of Diatoms.'

*Magyar Növénytani Lapok* (136, 137). —L. Haynald, Memoir of E. Boissier.

Tab. 288.



R. Morgan del. et lith.
West, Newman & Co imp.

1-5. Avrainvillea longicaulis. G. Murr. et Bood.
6. ,, Mazei G. Murr. et Bood.

# A SYSTEMATIC AND STRUCTURAL ACCOUNT OF THE GENUS *AVRAINVILLEA* Decne.

By George Murray, F.L.S., and Leonard A. Boodle, F.L.S.

(Plates 288 & 289.)

(Concluded from p. 72.)

## II.—Structural.

A mature plant of *Avrainvillea* consists of unicellular filaments repeatedly branched, and more or less interwoven so as to form a stalked or sessile frond above, and a mass of rhizoids below.

The filaments of the frond are dichotomously branched, and each branch is constricted at or near its base. In *A. longicaulis*, where the filaments are moniliform, there is nothing to distinguish this basal constriction from the rest of the innumerable constrictions to which the moniliform appearance is due (fig. 2); but in *A. Mazei*, &c., in which the filaments are cylindrical, the basal constriction forms a very noticeable feature (fig. 6), and recalls *Penicillus*, *Udotea ciliata*, &c.

The divergence of the branches varies a good deal in the different species; in *A. longicaulis* they are very divergent, often about 160° when first formed, but becoming less in the older parts of the frond. In *A. papuana* the divergence is generally very small, the two branches being often nearly parallel. In *A. longicaulis* the frond-filaments taper gradually towards their free ends, which are often much clearer than lower down. It may be mentioned here that the rhizoid filaments of all the species have the character of terminating in slender branches.

The unicellular character of the filaments in most of the species is never or very rarely interfered with, but, in the smaller rhizoids of *A. longicaulis*, the wall occasionally becomes so much thickened that the constrictions become septa. The opposite walls at the point of constriction approach one another until a small canal remains, and this becomes obliterated by the further growth of the walls (fig. 4). In *A. comosa* the cavity of the frond-filaments becomes intercepted at the basal constrictions by the formation of stoppers, which, in appearance and mode of formation, exactly resemble those of other *Siphoneæ*, e.g., *Codium* and *Bryopsis*. These stoppers are represented in Sonder's figure, Alg. Trop. Austr. tab. vi. fig. 7. In this species the constrictions are only slight, and are situated a short distance above the bifurcation; but their position is made conspicuous by the stoppers (fig. 12), which may be seen in many stages of formation. In *A. cæspitosa* we observed a few incomplete stoppers.

The cell-wall is uniformly thin, except in the rhizoids of some specimens of *A. longicaulis*, where it may be very much thickened, as mentioned above. Especially near the apices of filaments, the cell-wall can frequently be distinguished only where the protoplasmic *sac* has shrunk away from it.

The protoplasm forms a rather thin parietal layer in most cases. This is the case in many of the filaments of *A. papuana*, but towards their free ends the layer of protoplasm becomes thicker, so that at the apex, and for a varying distance below it, the cavity is completely filled by the protoplasm. In some filaments this mass of protoplasm is like that in other parts (fig. 9), but in some it is coloured deep reddish brown of varying opacity. When broken into fragments, this substance has a somewhat resinous appearance, and has not the roughly granular structure of the clearer apices. Owing to the dark colour, the effect of staining reagents cannot be properly observed, but probably this substance is altered protoplasm containing a colouring matter. This deeply-coloured mass sometimes reaches the very apex of the filament; in other cases it ends below the apex with a more or less sharp outline, and is capped with roughly granular protoplasm (fig. 10).

The chlorophyll-grains are distributed through the protoplasm very unequally. In some filaments they are crowded, while in others they are very few. As a general rule, they are crowded near the apex of a filament, and become gradually scarcer in passing back from the apex. They are rounded, polygonal or irregular in outline, and always possess a clear central pyrenoid. It is often very difficult to detect the presence of the chlorophyll-grains in parts where the protoplasm is very granular, and their green colour is often rendered invisible by the presence of a yellowish or brownish colouring matter throughout the protoplasm, but by examining the clearer parts of the filaments the clear green colour of the chlorophyll-grains can be seen in all the species. In *A. lacerata* there is scarcely any colouring matter in the protoplasm of most of the filaments, and hence the chlorophyll-grains are very conspicuous. The pyrenoid stains dusky purple with iodine very readily.

The amount of starch present in the filaments varies considerably in different specimens of the same species, and in different parts of the same plant. In the younger parts of the filaments small starch-grains are often seen in connection with the chlorophyll-grains, either inside them or at the periphery. In the older parts of the frond, and especially in the rhizoids, the starch-grains are often very numerous, forming the chief part of the cell-contents, and completely filling up some of the smaller rhizoids. In *A. papuana* they are kidney-shaped, in *A. cæspitosa* spindle-shaped, in *A. comosa* the same, or irregularly ovoid.

The nuclei are irregularly distributed in the parietal layer of protoplasm. They are usually considerably larger than the chlorophyll-grains, and much more granular. Of the staining reagents that we employed, picric aniline blue was the most successful in differentiating the nucleus. In fig. 11 some nuclei and chlorophyll-grains are represented in a filament of *A. papuana;* the nuclei are very large, and the chlorophyll-grains few.

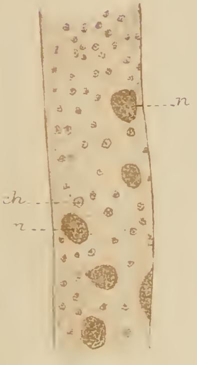
A yellow or brown colouring matter is present in dried or spirit material of all the species. It is distributed through the protoplasmic layer, and gives the filaments different shades of colour, from greenish yellow to orange and reddish brown. The very dark coloration of the tips of many of the filaments in *A. papuana*, mentioned above, is probably due to a larger formation or a modification of this colouring matter. We have been unable to determine the chemical nature of this substance. It is insoluble in water, alcohol, and ether, and is therefore not of the nature of phycophaein or phycoxanthin, neither does it give the chlororufin reaction. In *A. longicaulis* there are dense brownish masses, similar to those of *A. papuana;* they are sometimes terminal, sometimes intercalary in position. In *A. lacerata* there is very little colouring matter in most of the filaments, hence the chlorophyll-grains are only slightly obscured, and this species appears much greener than the others, in the dry state. In the living state the fronds of all the species are greener than when dried, having more of an olive-green colour. The change due to drying probably is partly owing to the fading of the chlorophyll, and partly to the darkening of the colouring matter, which, however, is present in living specimens of some of the species at any rate.

The frond, stalk, and mass of rhizoids of *Avrainvillea*, except in the case of *A. comosa*, and very young specimens of *A. papuana* and others, are composed, as has been said, of much interwoven filaments. The frond is always more or less flabelliform (figs. 1 & 8), and, except in the cases just mentioned, more or less felt-like in texture. This felt-like consistence is perhaps most marked in the frond of *A. longicaulis* (fig. 1), which is at the same time the thickest one of all. The branching of the filaments is, as has also been said, dichotomous in the frond, at all events, though less regular in the rhizoids—and this branching, being for the most part in the same plane in the frond, produces the flabelliform shape. In the stalks the filaments are rather more densely interwoven, and in the rhizoids of all the species and the rhizome-like structure of *A. longicaulis* a vast amount of coral-sand, small shells, and a multitude of small marine organisms get entangled. The rhizoid mass of *A. papuana*, when drawn forth, presents the appearance of a cylindrical mass of crumbling mortar, from the great amount of calcareous matter so enclosed. In the other species the corresponding parts are more spongy, and the substance enclosed is more finely-divided detritus, &c. In very young specimens, such as those of *A. papuana* (fig. 7) from Ceylon (Ferguson) and Borneo (Kjellman), there is little or no interweaving of the frond-filaments, and this is the case with *A. comosa* in the mature state, though the rhizoids of the last-mentioned species are interwoven in the characteristic fashion.

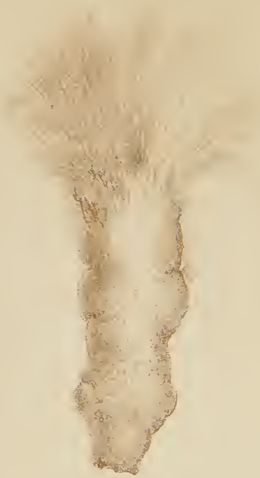
We do not cite here specially the case of *A. cæspitosa*, since we have only the immature specimens to judge by—these are very little interwoven, if at all. The binding together, then, of the frond, stalk, and rhizoids is effected solely by the interweaving of the component filaments. In the neighbouring genera, *Penicillus* and *Udotea*, other means are employed for this purpose. The incrustation of carbonate of lime in *Penicillus* very effectually attains this end; and *Udotea*, in addition to an incrustation (slighter than in the case of most species of *Penicillus*), is further provided with lateral tenacular filaments. In *Udotea* such means of cohesion are of course necessary, since the frond-filaments at all events are very straight, and run nearly parallel to each other. We have been much struck by the appearance in this connection of the fossil stem of *Nematophycus*. In describing this type, Mr. Carruthers, besides showing that it is truly algal in nature (and not a coniferous trunk, as Sir William Dawson had, absurdly enough, declared it to be), pointed to *Penicillus* and *Halimeda*, to this group that is, as exhibiting now a similar structure to that of which we have the remains preserved in *Nematophycus*. Graf Solms ('Palæophytologie,' pp. 46 & 86) seems to be inclined to regard *Nematophycus* as more nearly related to *Fucaceæ* than *Siphoneæ*. Against this view there is a good deal to be said, notably the open continuous structure of the tubes,—exactly like those of *Udotea*, for example,—and certainly unlike anything known to us in *Fucaceæ*. The late Prof. Dickie has written as a note on a specimen of *Avrainvillea nigricans* (his *Rhipilia Rawsoni*) in his herbarium, "In structure near *Nematophycus?*" The following reasons, however, appear to point to a closer resemblance in structure between *Udotea* and *Nematophycus*. The small filaments that wind about among the large axial filaments of *Nematophycus* were compared by Mr. Carruthers with the filaments of *Halimeda*, for example, which branch off and pass outwards, forming the cortical layer of that alga. They resemble much more closely the tenacular filaments of *Udotea*, and there is in some cases a very strong resemblance between the frond-filaments of *Udotea* and the axial filaments of *Nematophycus*. It appears very reasonable to assume that the small winding filaments of *Nematophycus* are tenacular in function, whether they terminate in actual tenacula or not, since the axial filaments are comparatively little interwoven, and since we have no reason, moreover, to assume that there was an incrustation in *Nematophycus*. What else, we may ask, held together the great trunk of *Nematophycus*, composed of filaments little interwoven? There is, at all events, no other explanation at hand of this mechanical problem. It appears therefore extremely probable, after a minute study of the group of *Udoteæ*, that we have in this group the living representatives of a gigantic, tree-like, siphoneous Alga, which inhabited the seas of the Devonian age.

As for the reproduction of *Avrainvillea*, we have few observations to submit, and these are not very conclusive. Fig. 5, Plate 288 represents what we take to be the terminal joint of one of the moniliform frond-filaments of *A. longicaulis*. It has become separated from the rest of the filament, and the slender moniliform tube attached appears to be an outgrowth from it. It was seen in the living state by one of us in Grenada. Attempts were made to procure the further growth of the slender filament, but these were not successful. Swollen terminal and interstitial joints are not uncommon in *A. longicaulis*, but these are not, so far as we know, ever cut off by transverse septation. They recal the torulose cells of a *Saprolegnia*, and possibly serve some such reproductive function. At the same time, in the absence of further evidence it is equally open to us to assume that the cell in question became

Tab. 289.



11



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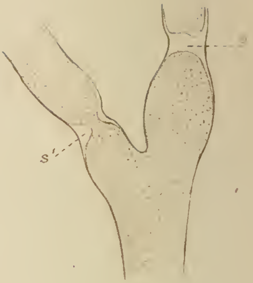
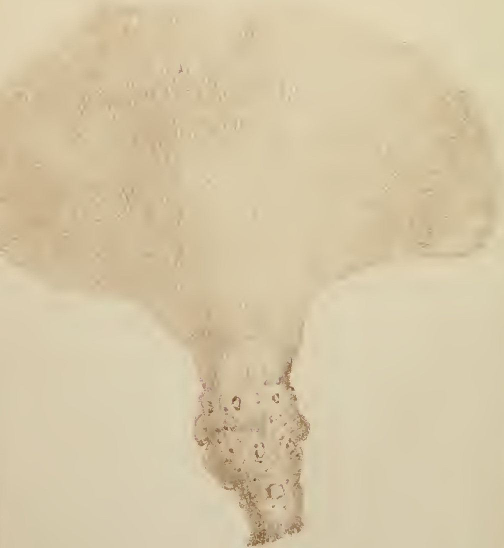


12



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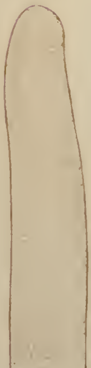

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10

R.Morgan del.et lith

West. Newman & Co. imp.

7–11. Avrainvillea papuana *G.Murr. et Bood.*
12. „ comosa *G.Murr. et Bood.*

detached after the outgrowth from it of the slender filament. In the same species there are occasionally to be met with certain swollen bladder-like outgrowths from the frond-filaments. One of us observed these also in the living state, and, recalling similar but more definitely-developed outgrowths in the allied genus, *Halimeda*, he kept them under observation, but without success. A minute examination of a great number of living plants from different localities in the West Indies, of plentiful spirit material and numerous dried specimens of the species described in this paper has been made without further result.

As in the case of so many of our native Algæ, these plants call not only for careful examination, but for prolonged watching. One individual of *A. longicaulis* is obviously in the position to produce a number of others vegetatively by means of the rhizome-like structure described. They grow commonly in large patches, and it is very rare under these circumstances to find one unconnected with its neighbours by this means. Strictly speaking, such a connected colony of fronds is one individual. The separation of fronds and stalks may account to some extent for the spread of this species, but it plainly does not account wholly for its distribution, and of course we have to deal with the other species, which have no such rhizomes. The above observation as to the abjunction of terminal, or the separation of interstitial propagating cells, may be a clue out of the difficulty, but the subject of the reproduction of *Avrainvillea* is well worth further investigation.

### EXPLANATION OF PLATES.

PLATE 288. — Fig. 1. Part of a rhizome of *A. longicaulis* bearing one large stalked frond, one stalk which has not yet formed a frond, and two broken stalks (⅗ natural size). 2. Rather old frond-filament of *A. longicaulis*, showing dichotomous branching (× 90). 3. Frond-filament of *A. longicaulis*, showing two protrusions, which are young branches (× 180). 4. Very small rhizoid of *A. longicaulis* (seen chiefly in optical section); the wall is very much thickened, and, at *a*, the thickening has produced a cross-wall (× 540). 5. Short filament, *f*, attached to a dark body, *d*, filled with dark brown contents, apparently a bead of a filament, which has become detached, and is putting out a young filament (× 180). 6. Frond-filament of *A. Mazei*, showing basal constrictions at *c* (× 120).

PLATE 289. — Fig. 7. Young plant of *A. papuana* with free frond-filaments (natural size). 8. Older plant of *A. papuana* with well-developed frond of interwoven filaments, edged with free filaments (natural size). 9. Tip of frond-filament of *A. papuana* filled with granular protoplasm (× 250). 10. Filament of same, with dark brown contents, capped with granular protoplasm (× 250). 11. Filament of *A. papuana*, showing nuclei, *n*, and chlorophyll-grains, *ch* (× 250). 12. Filament of *A. comosa*, showing branching and constrictions, at one of which there is a complete stopper, *s*, and at the other an incomplete one, *s′* (× 80).

# DR. SEEMANN'S STUDY-SET.

### By James Britten, F.L.S.

In a notice of the first two parts of the botanical portion of the 'Biologia Centrali-Americana,' I mentioned,* among other collections in the British Museum, "the study-set of Seemann's 'Botany of the Herald.'"

In the 'Appendix' to the 'Biologia' (p. 132), Mr. Hemsley writes: "The first set of [Seemann's] Panama and Mexican collections is at Kew, where Seemann, assisted by Sir Joseph Hooker and Mr. A. A. Black, then Curator of the Herbarium, elaborated his 'Botany of the Voyage of the 'Herald,'' and not at the British Museum, if that is what is intended by 'study-set' in a statement published in the 'Journal of Botany.'"

In the face of this direct contradiction of my statement, it seems desirable to show the real nature of Dr. Seemann's 'Herald' collections included in the herbaria of the British Museum and Kew; and this I now propose to do.

The matter originally came up in the suit of the King of Portugal *v.* Carruthers with regard to Dr. Welwitsch's plants, some account of which will be found in this Journal for 1875.† Mr. Carruthers there gave the following account of Dr. Seemann's collections during the voyage of the 'Herald':—

"The late Dr. Berthold Seemann was appointed Naturalist in the Government Expedition of the 'Herald' in the year 1846, and was paid by the Government for his services. In the course of the voyage he made extensive collections of plants, and on his return to England he was employed by the Lords Commissioners of the Admiralty to publish a description of the said collections, and was paid a salary for so doing. The study-set of plants, containing the names of the species, and the notes and descriptions of himself and the botanists who assisted him, remained his private property, and were purchased from him by the Trustees of the British Museum, and now form part of the National Herbarium under my charge."

In his affidavit in answer to this statement, on Nov. 28th, 1874, Sir Joseph (then Dr.) Hooker said:—

"Dr. Seemann's instructions were to send the whole of the collections of plants formed by him to the Admiralty, from whence they were transmitted to Sir William Hooker at the Royal Gardens, Kew. The whole of Dr. Seemann's collections were so sent home or brought home on his return voyage, and this latter portion Dr. Seemann similarly made over on his return. The bulk of the collections was arranged, and some of the duplicates distributed, before Dr. Seemann's return to England. On his return to England, Sir William Hooker procured through the Admiralty a grant from Her Majesty's Treasury for the publication of Dr. Seemann's botanical collections. I was residing at Kew at that time, and at his own request assisted Dr. Seemann in the examination and drawings of many of the specimens for such publication. These drawings were, for the most part, made from specimens contained in the herbarium at Kew, and not from any study-set or other collection possessed by Dr. Seemann. After Dr. Seemann's return, Sir William Hooker gave him permission to select for himself specimens from the duplicates that remained over after the arrangement and distribution referred to, and these were to my certain knowledge the only collection of his plants that Dr. Seemann possessed or could have had consistently with his engagements. The study-set, wrongly so called, of such collection, purchased by the Trustees of the British Museum, consists of plants given to Dr. Seemann by Sir William Hooker at Kew, and the notes and descriptions referred to in the said affidavit are, to the best of my recollection, duplicates of those made during his voyage by Dr. Seemann, together with those which he and others (myself included) made during the examination of the said collections for publication."

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* Journ. Bot. 1880, 90.

† It may be noted by the way that the term "study-set" first came into use, I believe, on this occasion: when Mr. Carruthers employed it in his affidavit (2nd Oct. 1874):—"It is a very unusual thing for a naturalist who has collected new species to part with his own, that is, the study-set. Such set is made specially for himself, and as an authority to be referred to when any questions arise respecting nomenclature."

Dr. Seemann's own description of the collections is given in the following letter to Mr. J. J. Bennett, then Keeper of the Department of Botany in the British Museum:—

"22, Canonbury Square, N.,
"Sept. 19, 1862.

"My dear Sir,

"DeCandolle, who has at various times borrowed sets of my Herbarium for working at his 'Prodromus,' wrote to me a few days ago, enquiring whether I should like to dispose of all the plants serving as the basis of my 'Botany of the Herald.' I have not yet answered his letter, as I often thought that I might offer them to the British Museum.

"There is only one more set in existence, and that is at Kew. All the specimens are glued down on writing-paper, not quite so large as that employed by you, but within an inch or so agreeing in size. They are in good preservation, and all named and arranged in families. If you will look at the 'Botany [of the] Herald,' you will see that a good many authors of note have had the handling of them; and here are the authentic specimens. They are the set that I was allowed to keep according to agreement.

"My reasons for wishing to dispose of them are because I have no room for them at my own house, and do not wish to keep them any longer at Kew. There are 2000 and odd species, and if you could make any use of them at the usual rate of charge, I should feel much obliged to you.

"Yours truly,
"B. SEEMANN."

We will now proceed to discover which of these accounts of the collections is to be accepted.

Dr. Seemann, in his preface to the 'Botany of the Herald,' alludes to "various great names who have conferred upon me the honour of connecting themselves with me in the present undertaking, and whose labours will confer a lasting value upon it." He thus refers to the botanists who monographed various orders: the following is a list of those who undertook the Panama plants, with the orders which they monographed:—

| | |
|---|---|
| Menispermaceæ and Solanaceæ . . . . | J. Miers. |
| Euphorbiaceæ . . . . . . . . . . | F. Klotzsch. |
| Leguminosæ (in part) and Labiatæ (in part) | G. Bentham. |
| Compositæ . . . . . . . . . . . . | J. Steetz. |
| Gentianaceæ . . . . . . . . . . . | A. H. R. Grisebach. |
| Artocarpeæ and Piperaceæ . . . . . . | F. A. W. Miquel. |
| Orchideæ . . . . . . . . . . . . . | H. G. Reichenbach fil. |
| Cyperaceæ and Gramineæ . . . . . . | Nees ab Esenbeck. |

I have not examined every species from Seemann in these orders, but I have taken two or three at random from each, and in every case I find them named in MS. by the monographer of the order—the *Compositæ* by Steetz, the *Leguminosæ* and *Labiatæ* by Bentham, the *Euphorbiaceæ* by Klotzsch, and so on. These are obviously the types for the descriptions of these authors. For the purpose of determining what they meant in their various contributions to the 'Botany of the Herald,' no one can doubt that these specimens, examined by the monographers and written up by them, are the supreme authority. With regard to the orders elaborated by Seemann himself, in so far as the plants are written up by him at the British Museum and Kew, they may be considered as of equal weight: but the types of Miers, Bentham, Klotzsch, Steetz, Grisebach, Miquel, Nees, and Reichenbach will be sought in vain at Kew.

An instance or two will illustrate the nature of the study-set now in the British Museum. Mr. Miers, speaking of what, in 'Bot. Herald.,' he called *Batschia conferta* Thunb., says, "Here are two specimens," and proceeds to describe them. The same specimens afterwards passed through Triana's hands,* who identifies one of them with *Strychnos darienensis* Seem., and describes the other as new, under the name of *Abuta Seemannii*,† which name he has himself attached to the British Museum sheet. C. DeCandolle (Bot. Herald,' p. 198) refers (No. 903) to a species of *Artanthe* as "*A. tiliæfoliæ* et *A. caladiifoliæ* affinis," and adds, "ex unico folio haud determinanda." The Kew specimen under the same Seemannian number (417) has—so Mr. Hemsley informs me—"a branch bearing two leaves and two spikes of flowers": the British Museum specimen consists only of one leaf, and is written up by C. DeCandolle himself, "*Artanthe* . . . . *A. tiliæfoliæ* et *A. caladiæfoliæ* affinis, ab utraque distincta." It is unnecessary to adduce further evidence to show that, although the collection at Kew may be more extensive and was employed by Sir Joseph Hooker in the analyses for the plates, the study-set of the plants is at the British Museum.

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* "*Batschia conferta* Miers in Seemann, Bot. of Herald, pp. 76—77; Walpers, Ann. iv. 135 (*fide specimen authentic.*)."

† Triana in Ann. Sc. Nat. 4th s. xvii. 50.

From what has been adduced, it will be manifest that Sir Joseph Hooker's affidavit was based on misconception, and stated what were supposed to be, rather than what were, the facts of the case. Dr. Seemann states that his set was retained "according to agreement"; Sir Joseph says that the only set he "possessed or could have had consistent with his engagements" was one selected from "the duplicates that remained over after the arrangement and distribution"; but it is clear that the latter description can scarcely describe the specimens selected for and submitted to the monographers, and employed by them in preparing their diagnoses of the new species.

It is the more difficult to understand how Sir Joseph Hooker formed this erroneous impression, as the study-set of Seemann's plants remained at Kew until 1862, when they were purchased by the Trustees, and transferred to the British Museum, Mr. Bennett noting their acquisition in the published Report of the Department of Botany for 1882–3 as "the type-collection of the Botany of H.M.S. '*Herald*.'"

# PLANTS NEAR BALLYHYLAND, CO. WEXFORD.

By C. B. Moffat, B.A.

Seeing in the 'Journal of Botany' for January a list of some plants found in the southern part of the county of Wexford, I am not without hope that a few notes from the north of the same county may possess some small degree of interest. In my attempted selection of the more noticeable species found in my neighbourhood I am greatly aided by the counsels of Mr. A. G. More.

The district surrounding Ballyhyland, where the following notes were taken, is a somewhat hilly country, remote from the sea, in the baronies of Scarawalsh and Bantry, and lies between the Rivers Urrin and Boro, both of which rise in the Blackstairs Mountains and discharge themselves into the Slaney. Blackstairs Mountain, and the Rivers Slaney, Urrin, and Boro, may therefore be considered as boundaries to the region generally referred to below. The signs * and † prefixed to the names indicate that the plant is certainly (*) or probably (†) introduced.

*Ranunculus peltatus* Fries. Boro and Urrin, and intermediate streams (Mr. H. C. Hart reports only *R. floribundus* from the Slaney).

**Papaver Argemone* L. Aughnaclappa; occurring as colonist in wheat-fields, rarely.

*Lepidium Smithii* Hook. Common by road-sides, banks, and walls.

†*Viola tricolor* L. (type). Killoughrum, abundantly in a small bog near the Urrin. Generally rare in my district.

**Saponaria officinalis* L. Road-side west of Enniscorthy; well established.

*Malva moschata* L. Frequent along lanes, and in hedges, &c.

*Hypericum dubium* Leers. Ballyhyland; Woodbrook; Killanne, &c. More frequent than *H. perforatum.*

*Geranium columbinum* L. Caim; Mangan; Moneyhore; Courtnacuddy. On dry upland pastures.

**Linum angustifolium* Huds. Caim; Moneyhore; not infrequent by road-sides.

†*Trifolium procumbens* L. About Ballyhyland; road-sides, &c., but possibly an escape from clover-fields.

**Anthyllis Vulneraria* L. Introduced. Occurs rarely, in hay-fields.

*Poterium Sanguisorba* L. Knockmore, on a dry bank. Only one locality known to me.

**Ægopodium Podagraria* L. Castleboro and Killegney. Woods in demesne-lands, &c.

**Sambucus Ebulus* L. Mangan; Killanne; Rathduff (sites of old cottages).

*Viburnum Opulus* L. Killoughrum Forest, plentifully: the only locality I know for it.

†*Galium Mollugo* L. Killoughrum, pasture-land; a small patch of it near the edge of a field.

**Petasites fragrans* Presl. A very troublesome weed in shrubberies, &c., about Ballyhyland. Thoroughly established.

*Bidens tripartita* L. By several small streams in the valley of the Urrin. — *B. cernua* L. In the valley of the Boro; apparently the rarer species.

†*Artemisia vulgaris* L. Caim; Rathduff; usually near villages.

**Tanacetum vulgare* L. Well established. Frequent on the top of roadside-banks.

**Centaurea Cyanus* L. Ballyhyland. Occurring only in wheat-fields.

*Carduus pratensis* Huds. Bogs at Ballyhyland, Cloheden, and Gurrawn. Very local. — **C. nutans* L. Aughnaclappa, in fallow-fields; I believe introduced in this locality.

**Cichorium Intybus* L. Aughnaclappa; Urrinsfort.

*Apargia hispida* Willd. Woodbrook Lawn, abundantly; this is the only place where I find it.

*Wahlenbergia hederacea* Reichb. Eastern slope of Blackstairs; and along the valley of the Urrin, plentifully for about four miles.

*Chlora perfoliata* L. Generally abundant on upland pastures throughout district.

*Gentiana Amarella* L. Killoughrum; Knockmore; Mangan. It and *G. campestris* are frequently found together, and are about equally abundant.

[*Cuscuta Trifolii* Bab. Has occurred on clover at Aughnaclappa; did not survive the winter. It occurred, I believe, also at Ballindoney, but has not become established.]

*Echium vulgare* L. Common in hay-fields, and in many dry, stony pastures.

†*Lithospermum arvense* L. Aughnaclappa, in potato-field, 1889. Rare in the district.

*Myosotis palustris* With. Bogs by the Slaney, frequent. At Monart. Disappears a little to the west of the Slaney. —*M. repens*

Don. Ballyhyland; Killanne. Takes the place of *M. palustris* towards the mountains. In some shallow streams commoner than *M. cæspitosa*.—*M. cæspitosa* Schultz. Very common in most streams in my district.

*Orobanche Rapum* Thuill. Killoughrum Forest, very plentifully in 1887. Occurred also on Mangan. — **O. minor* L. Now very common in clover; hardly a clover-field not infested with it. Was observed at Ballyhyland in 1868, but has greatly increased since that time.

**Mentha rotundifolia* L. In a boggy hollow at Rosdroit, and by side of the River Urrin, scattered for a few yards along the stream.

**Galeopsis Ladanum* L. Caim; a single plant only gathered.

†*Lamium album* L. Monart.

**Calamintha Acinos* Clairv. Knockmore; Mangan; a colonist in clover-crops.

*Linaria vulgaris* Mill. Ballyhyland, Caim, &c. Many localities.

*Scrophularia aquatica* L. Ballyhyland, and throughout the district; perhaps as common as *S. nodosa* in this neighbourhood.

*Orchis Morio* L. At Ballyhyland; very rare.

*Habenaria chlorantha* Bab. Frequent in boggy meadows.

*Potamogeton pusillus* L. In mill-stream at Ballynaminnan. The only locality in which I meet it.

*Carex pendula* Huds. Killoughrum Forest; Blackstairs; Banks of the Urrin and Boro; Ballyhyland, &c. Frequent.

*Trisetum flavescens* Beauv. A common grass at Ballyhyland.

*Melica uniflora* Retz. Killoughrum; Kiltrea.

†*Poa compressa* L. Aughna Goppal Bridge (River Boro); on the top of an old wall.

**Lolium temulentum* L. Knockmore. Occasionally a troublesome weed in barley.

*Equisetum sylvaticum* L. Common in bogs; one of the characteristic plants of the district.—*E. maximum* Lam. Shady bank by road-side near Bloomfield; the only locality known to me.

*Lastrea Oreopteris* Presl. The prevailing fern throughout the valley of the Urrin and round the base of Blackstairs.

*Hymenophyllum Wilsoni* Hook. Top of Blackstairs, at 2400 ft.

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# NEW COUNTY RECORDS FOR SUTHERLAND, CAITHNESS, AND ROSS. JULY, 1888.

By F. J. Hanbury, F.L.S., and J. Cosmo Melvill, M.A., F.L.S.

107 = E. Sutherland.
108 = W. Sutherland.
109 = Caithness.
106 = E. Ross.

*Ranunculus acris* L., b. *tomophyllos* Jordan. 109. Sandy cliffs and hills. Sandside Bay, Reay. — *R. Flammula* L., var. *pseudoreptans* Syme. 108. In wet sandy places. Shores of Loch Naver, below Altnaharra Inn.

*Nymphæa alba* L., var. *minor*. 108. Loch Hope. Loch Maidie, and also seen in a small sheet of water about a mile and a half north of Altnaharra Inn. Type already recorded.

*Cochlearia officinalis* L., var.? 108. A very large, well-marked form, with inflated silicules, in vast masses, near the eastern corrie of Ben Hope, at 2600 ft. The type has been already recorded.

*Lychnis diurna* Sibth., var. 108. With unusually-pubescent broad leaves, and thick, tomentose stem; flowers very deep crimson. Cliffs overhanging the road below Betty Hill Inn. What appears to be precisely the same form was gathered by J. C. M. on Stuich-a-Lochain rocks E. of Ben Lawers, Perth, in 1878. The type has been already recorded.

*Stellaria umbrosa* Opiz. 108. Betty Hill.

*Trifolium hybridum* L. 107. Helmsdale, near the station.

*Vicia sylvatica* L. 108. Sea-cliffs, Melvich. This was a stout, close-growing form, approaching the var. *condensata* Druce.

*Rosa dumalis* Biebst. 108. Common, Betty Hill.

*Epilobium anagallidifolium* Lam. 108. Ben Hope. Probably all the plants recorded hitherto as *E. alpinum* L. for Sutherland belong to this species.

*Galium sylvestre* Poll. 108. Ledges of rocks, W. side of Ben Hope, at 1500 ft.

*Leontodon autumnalis* L., b. *pratensis* Koch. 108. Ben Hope, at 1600–1700 ft. The type is already recorded.

*Hieracium holosericeum* Backhouse. 108. Rare amongst loose stones and rocks, at 2250–3000 ft. Ben Hope, mostly occurring singly.

*H. lingulatum* Backhouse. 108. Alt-na-caillich, above the Falls; and also above Casheldu, both W.S.W. of Ben Hope.

*Melampyrum pratense* L., var. *montanum*. 108. Ben Hope, at 1500 ft. An unusually small white-flowered form. Sparingly amongst grass. Type recorded.

*Mentha hirsuta* L. 108. In a ditch, Strath Naver, about eight miles N.E. of Altnaharra.

*Trientalis Europæa* L. 106. Tor Achilty, E. Ross; and (108) in birchwoods below the N.W. face of Ben Hope.

*Plantago maritima* L., form *pumila* Kjellmann. 108. A form new to this country, exactly agreeing with specimens in the Kew Herbarium, gathered by Kjellmann and Lündstrom in the Nordenskjiold Expedition, 1875, at Insula Wajgatsch, Cape Grebenig, Scandinavia. This interesting plant, which more resembles *P. alpina* L. than *P. maritima*, occurs very sparingly, at 3000 ft., just below the summit of Ben Hope, to the W. of the large corrie, growing singly amongst sand formed by the disintegration of the granite boulders, which are strewn everywhere around. It is in every way distinct from the Orkney form, *minor* H. & A. Our thanks are due to Mr. Baker, Prof. Babington, and Mr. Arthur Bennett, for help in the identification of this welcome addition to our flora. The type, which is common on Ben Hope at a lower elevation, has been already recorded.

*Rumex aquaticus* L. 108, 109. Altnacaillich, Betty Hill, near the estuary of the River Naver; and near Reay, Caithness.

*Sparganium simplex* Huds. 108. Altnacaillich.

*Carex pauciflora* Lightf. 108. Marshy ground, 1500–1800 ft., W. of Ben Hope.

*Alopecurus agrestis* L. 108. By the keeper's house, Altnacaillich.

# ON *EPILOBIUM ALPINUM* AND *E. ANAGALLIDIFOLIUM.*

By H. & J. Groves.

For many years British botanists were satisfied with one well-marked alpine *Epilobium*, *E. alpinum*, but in 1856 Prof. Babington, in an article on the British *Epilobia* in the 'Annals of Natural History,' added a second, *E. anagallidifolium* Lam., limiting the name of *alpinum* to plants having rosulate stoles, and linear-lanceolate acute sepals, and referring to *anagallidifolium* those having elongated stoles and oblong blunt sepals. This view has been maintained in the subsequent editions of the 'Manual of British Botany.' It was also adopted in the third edition of 'English Botany,' but with some misgiving, for Dr. Boswell writes:—"I have great hesitation in accepting this [*E. anagallidifolium*] as a species distinct from *E. alpinum*, as I find it extremely difficult to separate dried specimens which are destitute of stolons; and though I have collected both forms, I never supposed at the time I was collecting two species." In the eighth edition of the 'London Catalogue' the two species in question are maintained. Haussknecht, in his magnificent monograph of the genus, and Nyman, in the 'Conspectus Floræ Europææ,' both recognise only the one species, using for it the name of *E. anagallidifolium*.

From an examination of a number of specimens, we are led to conclude that *E. anagallidifolium* is not distinct from *E. alpinum*, the variation in the length of the internodes of the stoles being apparently due to differences of habitat. Although the sepals of some specimens are more obtuse than those of others, we have not been able to meet with any, either British or foreign, which can be described as "linear-lanceolate acute." The contention that *E. alpinum* is a Scandinavian, and *E. anagallidifolium* a French type will not hold, for the elongate-stoloned state occurs in Scandinavia, and in Linnæus's original description of *alpinum* Switzerland is given as one of the localities.

We think that the name of *E. alpinum* should be retained for the species, the grounds upon which it is rejected by some authors, in favour of Lamarck's more recent name, appearing insufficient. We cannot see that there is any evidence or probability that Linnæus included *E. alsinefolium* under *alpinum*, as stated by Nyman. Haussknecht apparently rejects the name of *E. alpinum* on the ground that Linnæus's species included his *E. lactiflorum*, as evidenced by a specimen in the Linnean Herbarium.

There must always be a difficulty in dealing with the Linnean names for the less conspicuously distinct species, and we think the more satisfactory method is to take each case upon its own merits rather than to lay down any general rule. Even if it be admitted that it is desirable to reject a Linnean name when the species is split up into several more or less equal parts, as in the case of *Callitriche verna*, we think it is better to retain the name when, as in the present case, there is a good distinct widely-distributed plant left after separating from it the comparative rare and local segregate. At any rate we fail to see that we are in a better position by the adoption of the Lamarckian name, *anagallidifolium*, which was probably intended to be as comprehensive as that of *alpinum*.

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## THE REV. CHURCHILL BABINGTON, D.D.

Churchill Babington was descended from a family for a long time well known in the counties of Derby and Leicester, and in the latter of those counties his ancestor, a cadet of the Derbyshire family, settled early in the sixteenth century. His father was the Rev. Mathew Drake Babington, incumbent of Thringstone in Leicestershire, who was of Trinity College and graduated in 1812, and was an excellent scholar. His son was born at Roecliffe in that county on March 11, 1821, and educated by his father, but was also for a short time a pupil of the late Charles Wyckliffe Goodwin, of Catharine Hall. He gave early attention to Natural History, especially to Botany and Ornithology. On April 16, 1839, a paper by him entitled "Remarks on British Lichens and Fungi," was read before the Linnean Society, of which body he became a Fellow on Jan. 18, 1853.

He entered St. John's College, Cambridge, in October, 1839, and graduated as a Senior Optime and seventh in the first class of the Classical Tripos in 1843. On March 30, 1846, he was elected a Fellow of the College, and immediately afterwards he started on a tour in the south of Europe, visiting his parents at Messina, to which place ill-health had driven his father from his living at Thringstone. He took advantage of this opportunity to make large botanical collections, and also to study the Roman antiquities of Italy. On his return he became a resident Fellow, occupying himself with literary and scientific pursuits.

In 1847 Mr. Babington rendered much assistance to Dr. (now Sir) J. D. Hooker in monographing the Lichens of the 'Flora Antarctica.' His knowledge of the group must then have been already extensive, as Dr. Hooker speaks of his "profound knowledge of the forms of this difficult order and acquaintance with the most recent writings of European Lichenologists." In 1851 he published, in Hooker's 'Journal of Botany,' an enumeration of the Arctic Lichens collected by Seemann, and he subsequently elaborated the remainder of the Lichens obtained during the voyage of the 'Herald,' and published in the volume on the 'Botany' of that expedition. He also enumerated the Lichens obtained in the Himalayas by Strachey and Winterbottom in 1847 and 1848; these, as well as a notice of those collected by Dr. Sutherland during Capt. Penny's Arctic voyage, are published in Hooker's Journal for 1852. The Lichens in the 'Flora of New Zealand' were also elaborated by Mr. Babington, who is referred to later by Dr. Hooker ('Handbook to N. Z. Flora,' p. 552), as "a learned man and most sagacious Lichenist." He is commemorated by Mr. Berkeley in *Strigula Babingtonii*, a lichen which he found at Cambridge; and in two fungi, *Psilopeziza Babingtonii* Berk., and *Agaricus Babingtonii* Blox.

Although his published work was limited to lichens, Mr. Babington had a good knowledge of flowering plants. With the Rev. A. Bloxam, he prepared a list of the plants of Charnwood Forest, Leicestershire, published in T. R. Potter's 'Charnwood Forest' (1842); and he contributed Leicestershire plants and localities to Mr. Watson, for the 'New Botanists' Guide.'

From 1848 to 1861 Mr. Babington held the chapelry of Horningsey, near Cambridge. In 1866 he was presented to the living of Cockfield, in Suffolk, where he resided until his death. In 1869 he married Matilda Whyte, the third daughter of the late Col. John Alexander Wilson, R.A. In 1879 he took the degree of D.D., and in 1880 he was elected an Honorary Fellow of St. John's College.

Mr. Babington recently published, through the Suffolk Institute of Archæology and Natural History, a valuable book, entitled 'The Birds of Suffolk,' and he largely contributed to Dr. Hind's forthcoming 'Flora of Suffolk.'

A very severe illness nearly four years since greatly hindered his work; and although he recovered to a great extent, his strength was never as before; but his mental powers continued as vigorous as ever until very near the end of his life. On January 3 he was attacked by rheumatic fever, and died on Saturday, January 12, of the present year, in the sixty-eighth year of his age. He was buried at Cockfield on January 17.

For much of the foregoing information we are indebted to the kindness of Dr. Babington's cousin, our valued correspondent Professor Babington.

## WILLIAM ALLPORT LEIGHTON.

In the Rev. William Allport Leighton, B.A., who died at his residence, Luciefelde, Shrewsbury, on the 25th February last, in his eighty-fourth year, we lose another of the older race of botanists among whom death has recently been so busy, who from time to time have enriched the pages of this Journal with their contributions. Mr. Leighton was descended from an old Shropshire family of that name seated at Wattlesbery Castle, but, being of a younger branch, his immediate ancestors were compelled to resort to agriculture and commerce as a means of support. His father kept the Talbot Hotel, Shrewsbury, a noted house in the old coaching days, and William Allport Leighton was his only son, born May 7th, 1805. He received the elements of his education at Mr. George Case's private school, in company with the illustrious Charles Darwin, who awakened in him his earliest curiosity in plant-life by plucking a flower and explaining to him that his mother (Mrs. Darwin) could tell the name of the plant by examining the blossoms. They continued to correspond in afterlife.

Being an only child, and somewhat delicate, his father did not send him to the Royal Free Grammar School of King Edward VI. in his native town, the discipline being thought to be too severe; he was therefore sent to the Free Grammar School, Wolverhampton, of which the Rev. William Tindal was Head Master. At the age of seventeen he was articled to a solicitor in Shrewsbury, but his father dying soon after, and leaving him a competency, he abandoned the law, for which he had no taste, resolving to enter the Church. Preparing himself for the University, he matriculated at St. John's College, Cambridge, where he graduated B.A. in 1833. The Rev. J. S. Henslow was Regius Professor of Botany there at that time, and young Leighton attended his lectures, and was one of his most zealous pupils. On his return to his native town he set himself the task of writing a work on the Flora of Shropshire. With this object in view, he deferred seeking ordination, and devoted himself almost exclusively to exploring the county. He contributed a list of Shropshire plants to Mr. Watson for the 'New Botanists' Guide' (1837); and in 1841, seven years after leaving the University, he published his 'Flora of Shropshire,' a work remarkable for the accuracy of its original diagnoses, and of the habitats it records: the etchings illustrating the morphology of some of the more difficult genera were by his own hand, and, although somewhat rude, are valuable for their fidelity. In 1843 he was ordained deacon at Easter, and priest at Christmas, as curate of Holy Trinity and St. Giles' Churches, Shrewsbury. These cures he resigned in 1848, but continued to take occasional duty, although he sought no further preferment. He embraced with much ardour the Oxford High Church movement, to which he remained stedfast to the end.

He had no sooner published his 'Flora of Shropshire' than he formed the design of working up the cryptogamic flora of the county, and at once commenced an active correspondence with British and foreign cryptogamists. In 1851 the Ray Society published his 'Angiocarpous Lichens Elucidated by their Sporidea'; and the same year he commenced issuing his 'Lichenes Britannici Exsiccati.' In 1854 'A Monograph of British Graphideæ' appeared in the 'Annals and Magazine of Natural History'; in 1856 'A Monograph of the British Umbilicariæ'; also a series of papers entitled 'Notulæ Lichenologicæ,' Nos. i.–xxxv., appeared in the same work, extending from 1866 to 1870. The following papers were read before the Linnean Society, and appeared either in the Transactions or the Journal:—'Lichenes Amazonici et Andini'; 'Notice on Lichens collected by Sir John Richardson in Arctic America'; 'Additions to the Lichen Flora of New Zealand'; 'On a New Species of Umbilicaria'; 'Notes on the Lichens of the Island of St. Helena'; '*Sphæria tartaricola* Nyl.'; 'The Lichens of Ceylon, collected by G. H. K. Thwaites, Esq.' In 1871 appeared 'The Lichen Flora of Great Britain,' which was reviewed somewhat severely in this Journal*; the second edition appeared in 1872, and the third in 1879. He contributed a series of papers to 'Grevillea,' extending from 1872 to 1876, entitled 'Lichenological Memorabilia'; a paper on '*Stigmatidium dendriticum*' to this Journal for 1875; and read two papers before the Linnean Society on 'New British Lichens' in 1876, and another on 'New Irish Lichens' in 1879.

After completing his third edition of the 'Lichen Flora of Great Britain,' he abandoned the study, finding it too much for his eyesight, and presented the whole of his valuable and extensive collection of Lichens, enriched by many foreign published fasciculi, to the Kew Herbarium, besides giving a great number of duplicates to the Shrewsbury Museum. Henceforth he devoted his attention to archæology, which, from early days, had shared a large portion of his time, and having taken an active part in establishing the Shropshire Archæological and Natural History Society, he became the honorary editor of its Transactions, to which he contributed many valuable papers. He was a Fellow of the Linnean Society, but retired in 1887, and of the Botanical Society of Edinburgh, from which he retired about the same time; as well as an honorary member of several Natural History Societies. His name is associated with the following plants:—*Opegrapha Leightonii* Cromb., *Lecidea Leightoniana* Larb., *Agaricus Leightonii* Berk., *Sphæria Leightonii* B. & Br., and *Calloria Leightonii* Phil.

In disposition Mr. Leighton was generous and warm-hearted, an agreeable and stedfast friend, and at all times ready to assist those engaged in his favourite pursuits. He was twice married, and bears a son and two daughters by the first wife, and a son by the second, who survives him. He was buried in the General Cemetery, Shrewsbury.

William Phillips.

# BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.

By James Britten, F.L.S., and G. S. Boulger, F.L.S.

(Continued from p. 83).

**Hibbert, George** (d. 1837 or 1838). M.P. F.L.S., 1793. F.R.S. Had bot. garden at Clapham. Sent Niven to the Cape. Herbarium presented to Linn. Soc. Eng. Bot. 524; Journ. Bot. 1886, 296. *Hibbertia* Andr.

**Hill, Miss** (fl. 1803–1830). Of Plymouth (?). Algologist. Correspondent of Dawson Turner. Greville, Algæ Brit. vi.; Turner, Fuci, i. 60; "A most indefatigable and faithful observer," Eng. Bot. 2084. *Nitophyllum Hilliæ* Grev.

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* Journ. Bot. 1871, 341.

**Hill, Edward Smith** (1819?–1880): b. 1819? d. Sydney, 17th March, 1880. 'Report on Flora of Lord Howe's Island,' 1870. Journ. Bot. 1880, 224.

**Hill, John** (1716–1775): b. Peterborough or Spalding, 1716; d. Bayswater, 22nd Nov. 1775. M.D., St. Andrew's. Knight of the Polar Star. First Superintendent, Royal Gardens, Kew. Had bot. gard. at Bayswater. 'Plants of the World,' 1751. 'Herbal,' 1756. 'The Vegetable System,' 1759–1775. 'Hortus Kewensis,' 1768. Pult. ii. 293; Pritz. 144; Jacks. 559; 'Works and Life,' 1779; Cott. Gard. v. 121; Wadd, 'Nugæ Chirurg.' 224; Hutchinson, 'Biog. Medica'; 'Biog. Dramatica.' Portr. by F. Coates, R.A., 1757, engr. by Vendramini for Dr. Thornton, and in mezzo. by R. Houston. *Hillia* Jacq.

**Hill, Robert Southey** (d. 1872). Of Basingstoke. M.D. F.L.S., 1856. Contributed to Phyt. i. 187. Herbarium in Winchester Museum. Prepared a MS. Flora of Hants. Townsend, Fl. Hampsh. xxi.; Journ. Bot. 1872, 352.

**Hincks, Hannah** (1798–1871). Of Belfast. Algologist. Eldest daughter of the following. *Ectocarpus Hincksiæ* Harv.

**Hincks, Rev. Thomas Dix** (1767–1857). Of Cork. LL.D. Corr. Sec. Belfast Bot. Soc. Sec. to Cork Institution. 'On Fl. of Ireland,' Ann. & Mag. vi. (1841), 1. Found *Hypericum linariifolium*, 1838. Contrib. to Eng. Bot. (2017, 2184). Allin, 'Fl. Cork,' pref. ii. R. S. C. iii. 355.

**Hincks, Rev. William** (1792?–1871): b. Belfast, 1792? d. Toronto, 10th Sept. 1871. Prof. Nat. Hist., Queen's Coll., Cork. Prof. Nat. Hist., Toronto, 1854. Of York. F.L.S., 1826. F.R.S.E. 'Vegetable Monstrosities,' Proc. Linn. Soc. i. (1840–41), 118. Baines, Fl. Yorks., preface; Canadian Journ. 1872, 253; R. S. C. iii. 355; vii. 983.

**Hinds, Richard Brinsley** (fl. 1844). Surgeon R.N. 'Regions of Vegetation, 1843. Edited 'Bot. of H.M.S. 'Sulphur,' 1844. Bot. Reg. 1844, p. 40; Pritz. 145; Jacks. 222; R. S. C. iii. 358. *Hindsia* Benth.

**Hinds, William** (1811–1881): b. Birmingham, 1811; d. same place, 18th Oct. 1881; bur. Old Cemetery, Birmingham. M.D., Aberdeen, 1847. Prof. Bot., Queen's Coll., Birmingham, 1861. Lect. Bot., Midland Institute. R. S. C. vii. 984; Gard. Chron. 1881, ii. 695.

**Hindson, Isaac** (fl. 1836–1872). Of Kirkby Lonsdale. Baker, 'Flora of Lake District,' 11.

**Hoare, Sarah** (1767?–1855): b. Bristol, 1767?; d. Bath?, 14th April, 1855. 'Pleasures of Bot. Pursuits,' 1818. 'Poems on Conchology and Botany,' 1831. Friends' Books, i. 955; 'Annual Monitor,' 1856.

**Hobson, Edward** (1782?–1830): b. Manchester?, 1782?; d. Manchester, 7th Sept. 1830; bur. St. George's, Hulme. Muscologist. First President, Banksian Society of Manchester, 1829. President, Lancashire Botanists. Correspondent of W. J. Hooker. 'Musci Britannici,' 1818–1822. Herbarium purchased by Manchester Bot. and Hort. Soc. Cash, 41; Mem. Lit. Phil. Soc. Manchester, 2nd ser., vi. 297; Gard. Mag. vi. 749

**Hockin, John** (fl. 1842). Of Dominica. Journ. Bot. 1843, 13. *Hockinia* Gardn.

**Hodgson, Elizabeth** (1814–1877): b. 1814; d. Ulverstone, Lancashire, 26th Dec. 1877. Memb. Bot. Ex. Club. 'Fl. of Lake Lancashire,' Journ. Bot. 1874. Herbarium in Herb. Mus. Brit. Journ. Bot. 1878, 64; Gard. Chron. 1878, i. 178; R. S. C. iii. 379; vii. 994.

**Hodson, Nathaniel Shirley** (fl. 1823–1833). A.L.S., 1823. Superintendent, Bury St. Edmunds Bot. Gard. 1833. Eng. Bot. 2645.

**Hoffman, G. H.** (1805–1882): b. Margate, 1805; d. Margate, 31st March, 1882; bur. same place. Grew *Mucor subtilissimus* on Onions, Journ. Hort. Soc. iii. 92. Gard. Chron. 1882, i. 540.

**Hogg, John** (1800–1869): b. Norton, Durham, 1800; d. same place, 16th Sept. 1869. B.A., Camb., 1822. M.A., 1827. F.R.S. F.L.S., 1822. 'Cat. Sicilian Plants,' 1842. Top. Bot. 548. 'Nat. Hist. Stockton-on-Tees,' 1827. Proc. Linn. Soc. 1869–70, c.; Jacks. 560; R. S. C. iii. 399; vii. 1004.

**Holbeach, Rev. Charles** (fl. 1812). Of Farnborough, Warwicksh. Discovered *Linosyris*. Eng. Bot. 2505.

**Holcombe, Rev. —** (fl. 1775). Of Pembroke. Correspondent of Sir J. Cullum and Lightfoot. Cullum MSS. at Hardwick House, Bury St. Edmunds; Journ. Bot. 1886, 22.

**Holdich, Benjamin** (1770–1824): b. Thorney, Nov. 1770; d. 1824. Editor of 'The Farmer's Journal.' 'Essay on the Weeds of Agriculture,' 1825, pub. posthumously, by G. Sinclair, with biog. preface. Jacks. 501.

**Holdsworth, J. H.** (fl. 1842). M.D. 'Memoranda on Tours and Touraine . . . . with a sketch of the Botany,' 1842.

**Holl, Harvey Buchanan** (1820–1886): b. Worcester ?, 28th Sept. 1820; d. Cheltenham, 11th Sept. 1886. M.D., Aberd., 1859. Civil Surgeon in Crimea. Practised in Pimlico. On Geol. Survey, Pennsylvania. Collected 47 vols. of British Lichens, now in Herb. Mus. Brit. R. S. C. iii. 404; Journ. Bot. 1886, 384; Geol. Mag. 1886, 526, with bibliogr.

**Holme, Rev. John** (fl. 1800–1815). Of Cambridge. M.A., 1818. F.L.S., 1800. Contributed to Eng. Bot. (780, 947, 2266, &c.). R. S. C. iii. 407.

**Hooke, Robert** (1635–1703): b. Freshwater, I. of Wight, 18th July, 1635; d. Gresham College, London, 3rd March, 1703. M.D., Cantuar., 1691. F.R.S., 1663. Assistant to Robert Boyle, 1655. Curator of Experiments to Royal Society, 1662. Prof. Mechanics, 1664. 'Micrographia,' 1665. Pritz. 148; Jacks. 219. Life prefixed to 'Posthumous Works,' 1705.

**Hooker, Frances Harriet,** *née* **Henslow** (1825–1874): b. Cambridge, 13th April, 1825; d. Kew, 13th Nov. 1874; m. Dr. J. D. Hooker (since knighted), 1851. Translated Le Maout & Decaisne's 'Analytical and Descriptive Botany,' 1873. Journ. Bot. 1874, 383; Jacks. 560; Gard. Chron. 1874, ii. 661.

**Hooker, William** (1779–1832): b. 1779; d. London, 1832. Botanical artist. F.R.H.S. Pupil of Bauer. Engraved and coloured Knight's 'Pomona Herefordiensis,' 1811. Coloured Lambert's 'Pinus.' 'Pomona Londinensis,' 1813–1818. 'Paradisus Londinensis,' 1806. Journ. Bot. 1886, 51. *Hookera* Salisb.

**Hooker, William Dawson** (fl. 1837): d. Jamaica. Eldest son of the following. Ornithologist. 'Notes on Norway,' 1837. Pritz. 148; Jacks. 128; Lasègue, 395.

**Hooker, Sir William Jackson** (1785–1865): b. Norwich, 6th July, 1785; d. Kew, 12th Aug. 1865. Regius Prof. Bot., Glasgow, 1820. F.L.S., 1806. F.R.S., 1812. LL.D., Glasgow. D.C.L., Oxon, 1845. Knight of Hanover, 1836. Director, Royal Gardens, Kew, 1841–1865. 'British Jungermanniæ,' 1816. 'Muscologia Britannica,' 1817. 'Flora Scotica,' 1821. Edited 'Bot. Mag.' from 1826. 'British Flora,' 1835. Proc. Linn. Soc. 1865–6, lxvi.; Journ. Bot. 1665, 326; Gard. Chron. 1865, 793, 818; Pritz. 148; Jacks. 560; R. S. C. iii. 422; vii. 1012; Journ. Hort. ix. (1865), 145. Portr. 'Men of Eminence,' 1863. Portr. in Ipswich Mus. series. Oil portr. by Sir D. McNee, in possession of family; one by Gambardella and bust by Woolner at Linn. Soc. Wedgwood medallion bust and portr. at Kew. *Hookeria* Sm.

**Hooper, Robert** (1772?–1835): b. London, 1772?; d. London, 6th May, 1835. B.A., Oxon, 1803. M.A., 1804. M.B., 1804. M.D., St. Andrew's, 1805. F.L.S., 1796. 'Structure and Economy of Plants,' 1797. Pritz. 150; Jacks. 34; Munk, iii. 29.

**Hope, John** (1725–1786): b. Edinburgh, 10th May, 1725; d. same place, 10th Nov. 1786. M.D., Glasgow, 1750. Pupil of Bernard de Jussieu. Prof. Bot. Edinb., 1761. F.R.S. First to teach Linnæan system in Scotland. Taught J. E. Smith. Introduced *Populus candicans* and *P. monilifera*. '*Rheum palmatum*,' Phil. Trans. 1766. Helped Lightfoot (Fl. Scotica, pref. xii.). Rees (sub voce 'Hopea'). Life, Harveian Oration by Andrew Duncan, Edinb., 1789. Portr. drawn and engr. by J. Kay, 1786. *Hopea* L. = *Symplocos* L. *Hopea* Roxb.

**Hope, Thomas Charles** (1766–1844): b. Edinburgh, 21st July, 1766; d. same place, 13th June, 1844. Son of the preceding. A.L.S., 1788. Prof. Chemistry, Glasgow. 'Tentamen . . . de plantarum motibus,' 1787. Pritz. 150; Proc. Linn. Soc. i. 250.

**Hopkirk, Thomas** (fl. 1812–1817). Of Paisley. F.L.S., 1812. 'Fl. Glottiana,' Glasgow, 1813. 'Flora Anomala,' 1817. Eng. Bot. 2532. Pritz. 150; Jacks. 561. *Hopkirkia* Spr. = *Salmea*. *Hopkirkia* DC.

**Hore, Rev. William Strong** (1808–1882): b. Plymouth, 1808; d. Barnstaple, Devon, 1882. B.A., Camb., 1830. M.A., 1840. M.A., Oxon, 1851. F.L.S., 1840. Vicar, St. Clement's, Oxford, 1850; Shebbear, Devon, 1855. Contributed list of Devon and Cornwall plants to Phyt. 1841. Communicated Algæ to Harvey. Phyt. 1845, 239; 1851, 94. Discovered *Orobanche amethystea* and *Trifolium Molinerii*. Journ. Bot. 1882, 288; R. S. C. iii. 433. *Horea* Harv.

(To be continued.)

## SHORT NOTES.

Carex elytroides Fries in Britain.— In July, 1887, Mr. J. E. Griffith, of Bangor, sent me several Carices from Anglesea; one was left undetermined until the spring of 1888, and then, I regret to say, partially forgotten. The specimen agrees very well with Fries' description of *Carex elytroides* (Summa Veg. Scand. p. 232), and with specimens from Dr. Almquist's herbarium. The likeness of the spikes to some forms of *rigida* and *pulla* is very marked. Fries places it under his "rigidæ," before *hyperborea* Drejer, and describes the fruit "fructibus obovatis compressis *enervibus* punctulatis." Sonder, in his Flora of Hamburgh, p. 495, says, "*3–5 striatus*," and Dr. Boott pointed out (Ill. Genus *Carex*) that Fries' remarks must not be taken too absolutely with regard to the use of the word "*enervibus*" by him, as Fries admitted that some of these forms did have indications of nerves, though described as "*enervibus*." In Mr. Griffith's plant they are almost obsolete. Nyman places it as a subspecies under *vulgaris* Fr. Fries says, "Species pulchella, a *C. vulgari* in cujus societate sæpe nascitur, *certe distincta*." It seems to recede from *vulgaris* towards *rigida*, but is a much slenderer plant than any forms of *rigida* I know. Fries quotes "*C. saxatilis? flaccæformis*, Læstadius," and Andersson adds, "Læst. *in litt.*, Fries *l. c.*, Bot. Not. 1845, p. 120." L. L. Læstadius has no mention of this form in his 'Loca Parallela Plantarum,' or C. P. Læstadius in his 'Bidrag' (1860). Andersson calls the Lapland form "*borealis*," and the Upsala one "*australis*." I give a few references, with the distribution:—

Carex elytroides Fries in Botaniska Notiser, 1843, p. 106; 1845, p. 120; Andersson, Scand. Cyper. p. 52, t. 5, fig. 48 (1849); Lang, in Linnea, vol. xxiv. (1851), p. 561; Sonder, Flora Hamburgensis (1851), p. 495; Lange, Consp. Fl. Grœnlandicæ, p. 147 (1880); Almquist, in Hartm. Fl. Skan. Flora, ed. 2, p. 468 (1879); Fries, Herb. Normale, f. 10, No. 77. — Greenland. Sweden in Upland (doubtful for Halland). Lapland, "By Palojoki and Kuttainen, near Enontekis," Læstadius in 'Bidrag till kännedomen om växtligheten i Torneå Lappmark,' 1860, pp. 26 & 44. Berlin, in his 'Distribution of Scan. Plants,' gives it for W. Bothnia. Lange says this was recorded from Greenland, "Jacobshavn," by Robert Brown as *C. aquatilis*. Dr. Boott, in Sir J. D. Hooker's 'Dist. Arctic Plants' (Linn. Trans. xxiii.), places it under *vulgaris*, without giving any special distribution. I do not understand Almquist's note under *C. rigida* (Hartm. *l. c.* p. 468), as surely Fries would hardly have put his own plant next *hyperborea* if it was an *acuta* form, which I see no good reason for supposing. Almquist seems to pass over many of Fries' plants with scant notice, while making others hardly more tenable himself; no doubt in some cases the specimens issued in the Herb. Normale seem hardly to represent the plants as *described* by Fries himself.—Arthur Bennett.

Calamagrostis borealis Læstad. in Scotland.—The grass which I gathered in Swath Tay, Mid-Perth, and recorded in Scot. Nat. as *C. stricta* (but which Mr. Arthur Bennett was in doubt about referring to *C. borealis*) has been identified with the latter name by Prof. Hackel. Further details will appear later on. It is the *Calamagrostis neglecta* Ehrh., var. *elatior* Hartm., and comes under the *Deyeuxia neglecta* Kunth as var. *borealis* (Læstad.) sub *Calamagrostis*. —G. C. Druce.

Erica mediterranea var. hibernica in Achill Island. — From a correspondent, Mr. J. R. Sheridan, I have lately received some specimens of the Mediterranean heath, flowering at the end of January. This is, I believe, a very unusually early date for its flowering. But the present has been a singularly mild winter, with scarcely any frost, and, until this week, no snow in Ireland. I had myself seen the Mediterranean heath when in Achill in 1872, and Mr. Sheridan has recently found two new localities at the north end of the island, where, in wet ground bordering on a stream, he tells me that it attains the height of three feet. I may here mention two other rare plants which I found in Achill Island, viz., *Eriocaulon septangulare*, in a small lake at north end of Achill; and *Potamogeton nitens*, in the stream flowing from Lough Keel, on south side of the island.—A. G. More.

Rubus pallidus W. & N. in North Somerset.—In face of so much uncertain nomenclature and varying opinion on the identity of British Rubi, I have refrained from furnishing supplemental notes on the brambles of the Bristol Coal-field since the publication of the 'Flora,' although some forms at that time not clearly understood have now been satisfactorily made out, two or three new species gathered and identified, and many additional localities recorded. An amount of general interest attaches, however, to one of these later discoveries; and it may not be premature to offer a few remarks on the occurrence of *R. pallidus* W. & N. in North Somerset, especially as I believe this species has only once been previously observed in Britain, namely, in Norfolk, by the Rev. E. F. Linton (see 'Reports of the Botanical Exchange Club,' 1885, 1886). The plant is strikingly handsome. On the barren shoot the leaflets are cordate acuminate, thin, and almost glabrous on both sides, and have a peculiarly crenate-dentate outline that I have never remarked upon any other bramble. It grows in great abundance on the marshy and wooded banks of a stream skirting Downside Common, Edford, about a dozen miles south-east of Bristol. The endeavour to ascertain if the plant had been already described gave a good deal of trouble. Two leading consults suggested that it might, perhaps, be a form of *R. scaber;* to which, undoubtedly, it is nearly allied. But the true *scaber* W. & N. (very little known in this country) has leaflets with fine and shallow serration, not crenate-dentate, as in this Edford plant. Later on, I learnt from Mr. Purchas that my specimens were just like some from Norfolk that Dr. Focke had named *pallidus*, and also that they corresponded well with pl. 29, 'Rubi Germanici.' On receiving examples from Sprowston, I saw that the puzzle was solved; and in a recent letter Mr. Linton informs me that he is quite satisfied that our plant is identical with his. That we should have in the west country a plant but recently observed for the first time in the extreme east of England is certainly remarkable. *R. pallidus* W. & N. will take a place among the British Rubi; and, as a welcome consequence, the term *pallidus*, as applied to a slight variety of *R. Koehleri*, should be relinquished. This bramble appears to have been mistaken for *R. humifusus* Weihe, and is recorded as such by the Rev. R. P. Murray in his 'Notes on Somerset Rubi,' published in Journ. Bot. 1886.—J. W. WHITE.

POLYGALA CALCAREA F. Schultz IN CAMBRIDGESHIRE. — In June, 1885, I found a plant on Chippenham Moor, which I supposed to belong to this species. Mr. A. W. Bennett, to whom a specimen has recently been submitted, confirms this name, and so enables us to add a new species to the Flora of Cambridgeshire. Interesting as this addition is in itself, it is much more so from the very remarkable locality in which it grew—a peaty moor covered with such plants as *Carex filiformis*, *Juncus obtusiflorus* and *Schœnus nigricans*, with *Epipactis palustris* and *Liparis Loeselii* in the wetter places. The substratum is a bed of the Lower Chalk, which is here and there exposed by the overlying peat having been all cut away by the turf-diggers; on these denuded spots such plants as *Thymus Chamædrys*, *Blackstonia perfoliata*, *Orchis pyramidalis*, and *Ophrys apifera* grow freely, the drainage of the fen now permitting the growth of dry-land plants where the soil is suitable. *P. calcarea* is not recorded from the Ouse Province in 'Topographical Botany,' so in all probability it was brought to Chippenham Moor from some distant locality; the other "highland" plants being such as grow on the surrounding hills. Now, with little doubt, seeds of *P. calcarea* brought by birds would have a better chance of vegetating if deposited on a spot of ground from which the natural herbage had been removed, and the bared chalky soil of which was unable to support peat-loving native plants. I have repeatedly noticed that such places, whether naturally or artificially denuded of their surface-soil, are exactly the localities where plants which are unknown to the surrounding districts are met with; and are also very attractive to flocks of migratory birds. Distribution of seeds by birds is no doubt constantly going on, yet how rarely we find a "new species" to record. I think this is chiefly due to the newly-imported seeds being unable to successfully struggle against the already established vegetation.—ALFRED FRYER.

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## *NEW PHANEROGAMS PUBLISHED IN PERIODICALS IN BRITAIN DURING* 1888.

THE periodicals cited in this list are, 'Annals of Botany,' 'Botanical Magazine,' 'Gardeners' Chronicle,' 'Icones Plantarum,' 'Journal' and 'Transactions' of the Linnean Society of London, and this Journal.

New genera are indicated by an affixed asterisk. We have added in square brackets the publishers of certain names which are cited from the MS. description or notes of those who stand by the authority for them.

Abelia parvifolia *Hemsl.* China. J. L. Soc. xxiii. 358.

Abutilon sinense *Oliv.* China. Ic. Pl. 1750.

Acantholimon Ecæ and A. speciosissimum *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 84, 85, tt. 35, 36.

Achillea Shepardi *Post.* Asia Minor. J. L. Soc. xxiv. 433.

Achras bahamensis *Baker.* Bahamas. Ic. Pl. 1795.

*Actinotinus sinensis *Oliv.* (Caprifoliaceæ). China. Ic. Pl. 1740.

Aeranthus Grandidierianus *Rchb. f.* Comoro Is. Gard. Chron. iii. 72.—A. ophioplectron *Rchb. f.* Madagascar. Id. iv. 91. — A. trichoplectron *Rchb. f.* Madagascar. Id. iii. 264.

Æthionema gileadense and A. longistylum *Post.* Asia Minor. J. L. Soc. xxiv. 421.

Agave Baxteri *Baker.* Mexico. Gard. Chron. iii. 392.

Ainsliæa glabra and A. ramosa *Hemsl.* China. J. L. Soc. xxiii. 471, t. 14.

Alangium Faberi *Oliv.* China. Ic. Pl. 1774.

Albuca Allenæ *Baker.* Zanzibar. Gard. Chron. iii. 10.

Allium leucosphærum, A. xiphopetalum, and A. Yatei *Aitch. & Baker.* Afghanistan. Trans. L. Soc. iii. 117, 118.

Aloe Hildebrandtii *Baker.* E. Trop. Africa. Bot. Mag. 6981.— A. longiflora *Baker.* S. Africa. Gard. Chron. iv. 756.

Alopecurus involucratus *Post.* Asia Minor. J. L. Soc. xxiv. 440.

Anchusa Shattuckii *Post.* Asia Minor. J. L. Soc. xxiv. 435.

Angræcum Saundersiæ *Bolus.* Natal. Ic. Pl. 1728.—A. Sanderianum *Rchb. f.* Gard. Chron. iii. 168. — A. tridactylites *Rolfe.* W. Africa. Id. iv. 34.

Anthemis caulescens *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 76, t. 33.

Anthurium Chamberlaini *Mast.* Venezuela? Gard. Chron. iii. 462, figs. 66, 67.

Artabotrys Monteiroæ *Oliv.* S. Africa. Ic. Pl. 1796.

Asarum macranthum *Hook. f.* China. Bot. Mag. 7022.

Asperula dissitiflora *Post.* Asia Minor. J. L. Soc. xxiv. 432.

Aster alatipes, A. Fordii, A. Henryi, A. limosus, A. Oldhami, A. procerus, all of *Hemsl.* China. J. L. Soc. xxiii. 407–415.

Astragalus Barrowianus, A. Cottonianus, A. Durandianus, A. Goreanus, A. Grisebachianus, A. Holdichianus, A. Lumsdenianus (t. 7), A. Merkianus, A. Nawabianus, A. Stephanianus, A. Talbotianus, A. Weirianus, all of *Aitch. & Baker.* Afghanistan. Trans. L. Soc. iii. 49–56.—A. trachoniticus *Post.* Asia Minor. J. L. Soc. xxiv. 426.

Bauhinia Faberi *Oliv.* China. Ic. Pl. 1790.

Begonia Scharffii *Hook. f.* S. Brazil. Bot. Mag. 7028.

Berberis gracilipes *Oliv.* China. Ic. Pl. 1754.

Bollea hemixantha *Rchb. f.* N. Grenada. Gard. Chron. iii. 206.

Bryonia monoica *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 65, t. 10.

Buettneria Curtisii *Oliv.* Penang. Ic. Pl. 1761.

Bupleurum Boissieri and B. antiochium *Post.* Asia Minor. J. L. Soc. xxiv. 426, 427.

Campanula amasiæ *Post.* Asia Minor. J. L. Soc. xxiv. 435.

Campanumœa axillaris *Oliv.* China. Ic. Pl. 1775.

Carex nova *L. H. Bailey.* N. America. J. Bot. 322.

Carpesium minus *Hemsl.* China. J. L. Soc. xxiii. 431, t. 13.

Carum brachyactis & C. nudum *Post.* Asia Minor. J. L. Soc. xxiv. 428. — C. leptocladum *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 66, t. 22.

Catasetum Garnettianum *Rolfe.* Gard. Chron. iv. 692. — C. pulchrum *N. E. Br.* Id. iii. 10. — C. tapiriceps *Rchb. f.* Id. iii. 136, all from Brazil.

Celsia Berneti *Post.* Asia Minor. J. L. Soc. xxiv. 437.

Centaurea Doddsii and C. trachonitica *Post.* Asia Minor. J. L. Soc. xxiv. 434. — C. plumosa *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 80.

Chærophyllum oligocarpum *Post.* Asia Minor. J. L. Soc. xxiv. 429.

Chamæsphacos afghanicus *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 97, t. 42.

Chelidonium lasiocarpum *Oliv.* China. Ic. Pl. 1739.

Chrysosplenium macrophyllum *Oliv.* China. Ic. Pl. 1744.

Cimicifuga calthæfolia *Maxim.* [*Oliv.*] China. Ic. Pl. 1746.

Cirsium Amani *Post.* Asia Minor. J. L. Soc. xxiv. 434.

Cistanche laxiflora and C. Ridgewayana *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 93, 94, tt. 39, 40.

Cleisostoma ringens *Rchb. f.* Philippines. Gard. Chron. iv. 724.

Cocculus affinis *Oliv.* China. Ic. Pl. 1760.

Codonocephalum Peacockianum *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 75, tt. 31, 32.

Coelogyne lactea *Rchb. f.* Burmah. Gard. Chron. iii. 521.

Cousinia Winkleriana *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 79.

Crepis heterophylla, C. longipes, C. prenanthoides, all of *Hemsl.* China. J. L. Soc. xxiii. 475–77.

Cynoches versicolor *Rchb. f.* Brazil. Gard. Chron. iv. 596.

Cynosorchis elegans and C. Lowiana *Rchb. f.* Madagascar. Gard. Chron. iii. 424.

Cypripedium bellatulum *Rchb. f.* Gard. Chron. iii. 648. — C. dilectum 'n. spec., hyb. nat.,' *Rchb. f.* Id. iii. 330. — C. Elliottianum *O'Brien.* Philippines. Id. iv. 501.— C. Rothschildianum *Rchb. f.* Papua. Id. iii. 456.

Cytinus Baroni *Baker fil.* Madagascar. J. L. Soc. xxiv. 469, t. 19.

Daucus jordanicus *Post.* Asia Minor. J. L. Soc. xxiv. 431.

*Daydonia *Britten* (= Anneslea *Wall.*). Journ. Bot. 11.

Decaschista ficifolia *Mast.* Burmah. Gard. Chron. iv. 565.

Decumaria sinensis *Oliv.* China. Ic. Pl. 1741.

Delphinium Zalil *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 30, t. 3.

Dendrobium chryseum *Rolfe.* Assam. Gard. Chron. iii. 233.

Dendrocalamus sikkimensis *Gamble MSS.* [*Oliv.*]. Sikkim. Ic. Pl. 1770.

Dendrophylax Fawcetti *Rolfe.* West Indies. Gard. Chron. iv. 533.

Derris Fordii *Oliv.* China. Ic. Pl. 1771.

Dianthus auraniticus *Post.* Asia Minor. J. L. Soc. xxiv. 422.

Didissandra sesquifolia *Clarke.* China. Ic. Pl. 1797.

Didymocarpus stenanthus *Clarke.* China. Ic. Pl. 1799.

Diplospora fruticosa *Hemsl.* China. J. L. Soc. xxiii. 383.

Dorema serratum *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 70, t. 28.

Engelhardtia nudiflora *Hook. f.* Penang. Ic. Pl. 1747.

Ephedra sarcocarpa *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 112, t. 47.

Epidendrum auriculigerum *Rchb. f.* Gard. Chron. iv. 34.

Eremostachys persimilis and E. Regeliana *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 98, 99.

Eria striolata *Rchb. f.* Papua. Gard. Chron. iii. 554.

Erigeron setiferum *Post.* Asia Minor. J. L. Soc. xxiv. 433.

Esmeralda bella *Rchb. f.* Gard. Chron. iii. 136.

Euonymus macrocarpus *Gamble* [*Oliv.*]. Bhotan. Ic. Pl. 1763.

*Faberia (Compositæ, Cichoriaceæ) sinensis *Hemsl.* China. J. L. Soc. xxiii. 479.

Ferula Amani *Post.* Asia Minor. J. L. Soc. xxiv. 429. — F. suaveolens *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 69, tt. 20, 21.

Ferulago auranitica and F. Blancheana *Post.* Asia Minor. J. L. Soc. xxiv. 430.

Ficus Canoni *N. E. Br.* Society Islands. Gard. Chron. iii. 9.

(To be continued.)

## NOTICES OF BOOKS.

*The Folk-lore of Plants.* By T. F. Thiselton Dyer. London: Chatto & Windus. 1889. 8vo, pp. 328. Price 6s.

The Rev. T. F. T. Dyer, who has been confused, in various newspaper notices of this book, with his better-known brother the Director of Kew Gardens, has for many years been engaged in the compilation of volumes and papers dealing with different aspects of folk-lore. Nothing is easier than this kind of work: there is an abundance of material ready to hand, and the slightest literary skill is sufficient to dress it up in a fashion suited to the popular taste.

There is so much folk-lore connected with plants, extending over so wide a period of time and associated with so many objects, and the interest taken in flowers in this country is so general, that it is not to be wondered at that many books have been compiled on the subject. Papers in reviews, magazines and newspapers have been legion; and as each succeeding writer lays under contribution all the book-makers who have preceded him, it is obvious that the task becomes easier each time it is undertaken. The Rev. H. Friend's 'Flowers and Flower-lore,' noticed at some length in these pages,* and Mr. Richard Folkard's 'Plant Legends and Lyrics,' † both of which appeared in 1884, are prototypes of

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* Journ. Bot. 1884, 157. † Ib. 1885, 59.

Mr. Dyer's book and doubtless of many more to come; but the former of these contains original information, which Mr. Dyer's volume entirely lacks, and the latter is far more comprehensive than the most recent example of the type.

The three books have points of internal resemblance. Each has a contempt for exactness and accurate reference: "an old writer," "a Franciscan," "a legend," "the Botanical Register," "the Veda," "a dream interpreter,"—this is the approved mode of citation. Each accepts as genuine T. F. Forster's "spurious antique," beginning "The snowdrop in purest white arraie," the history of which has been given over and over again.* Mr. Dyer is so pleased with this that he chops it up into little bits, which he sprinkles in in suitable places, referring to each as "the old adage," or "the old rhyme," or "a well-known couplet," or "the familiar couplet," and so on.

Mr. Dyer gives an appearance of care to his book by the insertion of numerous references in footnotes. Perhaps I am unfortunate, but it is nevertheless the fact that five consecutive ones I have tested at random are inaccurate. The same book is referred to in various ways: thus, Mr. Folkard's book is cited in at least five forms. It is to be noted, however, that these references by no means adequately represent the extent to which Mr. Dyer is indebted to the labours of others; and I feel bound to protest against the free use which he has made of the 'Dictionary of English Plant-names,' which, in conjunction with Mr. Robert Holland, I prepared some years since for the English Dialect Society.

This work, from its nature, was to some extent a compilation; but in its preparation we examined hundreds of little-known works, and collected, from the lips of the people, traditions, folk-rhymes, and the like. These, so far as they bore on the names, we included in our book, attaching to each, when extracted from a printed source, a reference to the place of publication. Mr. Dyer has appropriated these extracts bodily, and, by appending to them our reference to the place of publication, has given an appearance of original research to his work which it certainly cannot justly claim. Mr. Dyer's chapter on "children's rhymes" (pp. 233—241) is entirely taken from our book; all that he has done is to run together the notices which, owing to the alphabetical arrangement of our Dictionary, are scattered over various pages. Rhymes which have not elsewhere appeared in print are transferred bodily; in other cases, the references which we give are printed as if originally made by Mr. Dyer. Our very sentences, scarcely altered, are appropriated without any mark of quotation.† One incidental and one inaccurate reference* comprise the acknowledgment which Mr. Dyer thinks adequate under these circumstances; throughout his book I only note four or five more, although the compiler is largely indebted to us for other of his chapters. This is a strong protest: but it will not be found a whit too strong by those who will compare Mr. Dyer's Chapter on "Children's Rhymes" with the 'Dictionary of English Plant-names.' A further examination of the book reveals many instances of this mode of treatment.

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* See Journ Bot. 1884, 158.

† *e.g.*:—

". . . the word 'oblionker' apparently being a meaningless invention to rhyme with the word 'conquer,' which has by degrees become applied to the fruit itself."—Dyer, p. 238.

"The word 'oblionker' seems to be a meaningless invention to rhyme with the word 'conquer,' and it has gradually become applied to the fruits themselves."—Britten and Holland, p. 358.

There is one way, and one only, in which a valuable book of plant folklore can be written, and that is on the lines adopted in France for Zoology by M. Rolland. It should be of the nature of a dictionary: under each plant should be entered all the rhymes, superstitions, and traditions respecting it, with the authority for each. The Sagas and the Eddas and the Vedas should be ignored; vague statements, unverified quotations, and "old writers" should be tabooed; the work should be confined to British and common garden plants. The result would not be a readable and popular work, and it would attract but few readers; but it would be of permanent value to the student of comparative folklore and mythology, and (which is a doubtful boon) it would be an almost inexhaustible quarry for the Mr. Dyers of the future. Such a work Mr. Holland and myself have long hoped to prepare for the Folklore Society; nor, although the years glide away, each more rapidly than the last, and each brings with it more than enough of occupation, have we yet entirely abandoned the hope. James Britten.

*La Truffe.* Par le Dr. C. de Ferry de la Bellone. Paris: Baillière et Fils. 1888. 3 *fr.* 50 *c.*

This volume of the 'Bibliothèque Scientifique Contemporaine' resembles the others in being well and properly written, nicely printed, in handy form, and well illustrated. The author deals with "truffles" in the wide sense of the term, and gives a clear account of their structure, and the modes of distinguishing the various sorts, without attempting any severe scientific discussion of the subject. He treats the commercial aspect of it in a very interesting fashion, dealing with the forest and other laws relating to truffles in France. The most valuable part of the book is, perhaps, the exhaustive accounts of the habitats of truffles, and the map showing their distribution in France. The frontispiece is a very charming sketch, by M. Paul Vayson, of truffle-hunting with pigs—a form of sport or industry which can hardly be very charming to the pig. G. M.

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* At p. 241, where Mr. Dyer says that we "suggest" that 'Davie-drap' = *Luzula campestris*, "which so often figures in children's games and rhymes." We don't "suggest,"—we say "this is no doubt *Luzula campestris*, which often figures in children's games and rhymes." The coincidence in expression will be noted.

The two numbers of the new 'Revue Générale de Botanique,'* under the direction of M. Gaston Bonnier, augur well for the future. Each number contains fifty octavo pages, two well-executed plates, and several woodcuts inserted in the text. The parts issued for January and February, 1889, contain six original articles, and an excellent review of all anatomical works published in 1888, by M. Leclerc du Sablon; and a review of works on Fungi, by M. J. Costantin. The following subjects have been already treated:—Ectocarpus; Development and Constitution of Antherozoids; the Vegetation of the Valley of Chamouni; Chlorophyllic Assimilation and Transpiration; Influence of External Agents on the Polar and Dorsiventral Organisation of Plants; and the Chemical Constituents of the tubers of *Stachys tuberifera*. The following eminent botanists undertake to review and treat of the various subjects, in which they are known specialists:—MM. Bonnier, Boutroux, Costantin, Dufour, Flahault, Franchet, Hy, Leclerc du Sablon, Rouy, and Saporta. These names will be amply sufficient to guarantee that the work will be thoroughly well done. We can only add that the papers and reviews already published in the two numbers issued are admirable in every way, and we heartily wish success to the new venture.

New Books.—T. & G. Peckott, 'Historia das Plantas medicinaes e uteis do Brazil,' part i. (Laemmert, Rio: 8vo, pp. 230).—H. de Vries, 'Intracellulare Pangenesis' (Fischer, Jena: 8vo, pp. vi. 212).—M. Reclu, 'Manuel de l'Herboriste' (Baillière, Paris: 8vo, pp. 160; 2 francs).—J. Grisard & M. VandenBerghe, 'Les Palmiers utiles et leurs alliés' (Rothschild, Paris: 4to, pp. viii. 232; 16 plates, 120 cuts).—N. Hildebrand, 'Handbuch des Landwirtschaftlichen Pflanzenbaues' (Pavey, Berlin: 8vo, pp. viii. 484; 233 cuts).—G. Kraus, 'Grundlinen zu einer Physiologie des Gerbstoffs' (Engelmann, Berlin: 8vo, pp. vi. 131).—A. Hansen, 'Systematische Charakteristik der medicinischwichtigen Pflanzenfamilien' (Stahel, Würzburg: 12mo, pp. iv. 56).—A. Blomener, 'Die Cultur der landwirthschaftlichen Nutzpflanzen' (Winter, Leipzig: vol. i. 8vo, pp. xii. 604; 43 cuts).—A. Tschirch, 'Angewandte Pflanzen anatomie: I. Grundriss der Anatomie' (Urban, Wien: 4to, pp. xii. 548; 614 cuts).—L. Piccioli 'Guida alle Escursioni botaniche rei dintorni di Vallombrosa' (Firenze: 8vo, pp. 297).—T. Lorey, 'Handbuch der Forstwissenschaft' (Laupp, Tübingen: 4to, vol. i. pt. 1, pp. xv. 630, 15; pt. 2, pp. x. 614; vol. ii. pp. x. 576).—T. F. T. Dyer, 'The Folklore of Plants' (London, Chatto: 8vo, pp. 328; 6s.).—A. W. Bennett & G. Murray, 'A Handbook of Cryptogamic Botany' (London, Longmans: 8vo, pp. vi. 473; 378 cuts; 16s.).—C. B. Plowright, 'A Monograph of the British Uredineæ and Ustilagineæ' (London, Kegan Paul: 8vo, pp. vii. 323, tt. 8; 11 cuts; 10s. 6d.).—J. M. de Lacoizqueta, 'Diccionario de los Nombres Euskaros de las Plantas' (Pamplona: 8vo, pp. 202).

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* 'Revue Générale de Botanique,' dirigé par M. Gaston Bonnier. Paris: Paul Klincksieck, 15, Rue de Sèvres.

## Articles in Journals.

*Annals of Botany* (dated Feb., issued March). — Kingo Miyabe, 'Life-history of *Macrosporium parasiticum*' (2 plates).—E. J. Lowe & A. M. Jones, 'Abnormal Ferns, Hybrids, and their Parents' (1 plate). — M. C. Cooke & G. Massee, 'New development of *Ephelis* (*E. trinitensis* C. & M., *Balansia trinitensis* C. & M.).—C. A. Barber, 'Structure and Development of Bulb in *Laminaria bulbosa*' (2 plates). — E. Schunck, 'Chemistry of Chlorophyll' (1 plate).— R. Trumbull, 'Water-pores in Cotyledons.' — G. Murray & L. A. Boodle, 'Note on *Spongocladia*.' — J. B. Farmer, 'Morphology of *Isoetes lacustris*.'—F. W. Oliver, 'New form of *Trapella sinensis*.'

*Bot. Centralblatt* (Nos. 9–12).—C. Lauterbach, 'Untersuchungen über Bau und Entwickelung der Sekretbehälter bei den Cacteen' (2 plates).—(Nos. 9, 10). F. W. C. Areschoug, '*Rubus obovatus* and *R. ciliatus*.'—(No. 10). J. Sadebeck, 'Zur Frage über Nag-Kassar von *Mesua ferrea*.' — (No. 11). F. Ludwig, 'Australische Pilze' (*Battuea Tepperiana*, n. sp.).—C. O. Harz, 'Bergmerkspilze.'

*Botanical Gazette* (Feb.). — J. Smith, 'Undescribed Plants from Guatemala' (*Guatteria grandiflora*, *Clidemia cymifera*, *Blakea guatemalensis* (t. 6), *Clibadium arboreum*, *Ardisia micrantha*, *Ipomœa discoidesperma*, *Solanum olivæforme*, *Tetranema evoluta*, *Scutellaria orichalcea*, *Daphnopsis radiata*, *Hypoxis racemosa*, spp. nn.). — H. E. Hooker, '*Cuscuta Gronovii*' (1 plate). — E. L. Gregory, 'Development of cork-wings on certain trees.' — C. R. Barnes, 'N. American Mosses' (*Bryum Knowltoni*, n. sp.).

*Bot. Zeitung* (Mar. 1, 8). — C. Wehmer, 'Das Verhalten des oxalsauren Kalkes in den Blättern von *Symphoricarpus* und *Cratægus*.' — J. Reinke, 'Ein Fragment aus der Naturgeschichte der Tilopterideen.' — (Mar. 15). P. Soraner, 'Mittbeilungen aus dem Gebeite der Phytopathologie.' — (Mar. 22). F. A. F. C. Went, 'Die Vacuolen in den Fortpflanzungszellen der Algen.'

*Bull. Soc. Bot. France* (xxxv. pt. 5, Mar. 1). — J. A. Battandier, 'Quelques plantes d'Algérie' (*Silene Rouyana*, *Bupleurum mauritanicum*, *Carum Chaberti*, *Ferula longipes* Coss., *Centaurea Cossoniana*, *C. Pomeliana*, *Carduncellus Duvauxii*, *C. cæspitosus*, *Zollikoferia arborescens*, *Thymus dreatensis*, *Thesium mauritanicum*, spp. nn.).— Prillieux, 'Tumeurs ligneuses ou broussins des vignes.'—E. Heckel, 'Présence des cystolithes dans le genre *Exostemma*.' — H. Leconte, 'Développement des parois criblèes dans la liber des Angiospermes.' — P. Maury, 'Affinités du genre *Susum*.' — L. Mangin, 'Sur les réactifs iodés de la Cellulose.'—A. Franchet, '*Primula* du Yun-nan' (*P. pellucida*, *P. pulchella*, spp. nn.). — L. Daniel, 'Structure anatomique des Chicoracées.' — G. Bonnier, 'Influence du climat alpin sur la végétation.'

*Gardeners' Chronicle* (Mar. 2).—'History of English Gardening.' —H. M. Ward, 'Smut-fungi.' — W. G. Smith, *Polyactis galanthina* (fig. 49). — (Mar. 9). *Bulbophyllum suavissimum* Rolfe, n. sp.— (Mar. 16). *Iris atropurpurea* Baker, n. sp. — (Mar. 23). *Disa tripetaloides* N. E. Br.—*Pinus Jeffreyi* (figs. 65, 68).—W. G. Smith, *Didymium dædaleum* (fig. 66).

*Journal de Botanique* (Feb. 1). — N. Patouillard, 'Fragments mycologiques.' — H. Douliot, 'Recherches sur le Périderme.'— — Masclef, 'Geographie botanique du nord de la France.'— (Feb. 16). A. Franchet, 'Deux *Primula* à graines anatropes.'— E. Merv, 'Influence de l'exposition sur l'accroissement de l'écorce des Sapins.'—J. Constantin, '*Tulasnella*, *Prototremella*, *Pachysterigma*.' — C. Sauvageau, 'Sur la racine des plantes aquatiques : les *Potamogeton*.'

*Magyar Növénytani Lapok* (No. 138). — G. Istvánffi, 'De fungorum nucleis.'

*Œsterr. Bot. Zeitschrift* (Jan.). — Memoir of Johann Palacky (portrait).—A. Hansgirg, 'Adriatische Algen.'—B. Blocki, *Potentilla Knappii*, n. sp. — L. Simonkai, '*Inula menesiensis* (*obvallata* × *pleiocephala*).'—A. F. Entleutner, 'Anlangen von Meran.'—(Feb.). V. v. Borbás, *Tilia semicuneata*. — B. Blocki, *Potentilla Tynieckii*, n. sp. — K. Vandas, 'Flora von Sud-Hercegovina' (*Melampyrum fimbriatum*, n. sp.). — L. Simonkai, '*Bromus Baumgartenii* Steud. & *B. Barcensis* Simk.'—(Mar.). A. Kerner, 'Ueber den Wechsel der Blüthenfarbe an einer und derselben Art in verschiedenen gegenden.' — J. Wiesner, 'Zur Erklärung der wechselnden Geschwindigkeit des Vegetationsrhythums.'—M. Willkomm, 'Ueber einige kritische Labiaten der spanischbalearischen Flora.'—G. Haherlandt, 'Ueber das Längenwachsthum und den Geotropismus der Rhizoiden von *Marchantia* und *Lunularia*.'—H. Molisch, 'Notiz über das Verhalten von *Ginkgo biloba* im Finsterm.' — P. Ascherson, 'Zur Synonymie das *Eurotia ceratoides* and einige ägyptischer Paronychieen.' — J. Freyn, 'Ueber einige Kritische *Arabis*-Arten.' — R. v. Wettstein, *Pinus digenea* (*nigra* × *montana*). — M. Kronfeld, 'Chronik der Pflanzenwanderung : *Galinsoga parviflora*.'

## *LINNEAN SOCIETY OF LONDON.*

*Feb.* 7, 1889.—Mr. C. B. Clarke, M.A., F.R.S., Vice-President, in the chair. — Messrs. J. R. Green and J. W. White were admitted Fellows of the Society, and, on a ballot taking place, the following were elected : the Earl of Ducie, Messrs. Henry Hutton and Malcolm Lawrie.—The Rev. E. S. Marshall exhibited several interesting varieties of British plants, collected by him in Scotland, and made remarks thereon. Mr. E. M. Holmes exhibited a new British seaweed from Bognor, *Rhododermis elegans* var. *polystromarica*, a variety new to science.

*February* 21*st*.—Mr. Carruthers, F.R.S., President, in the chair. Mr. G. A. Grierson was admitted a Fellow of the Society, and on a ballot being taken, Messrs. Hindmarsh, Kirkby, Lowe and Morton were elected Fellows.—Mr. George Murray exhibited a fossil Alga, *Nematophycus Logani*, Carr.—Mr. G. C. Druce exhibited some rare British plants from Scotland, amongst which were *Calamagrostis borealis*, *Ranunculus acris* var. *pumilus*, and *Bromus mollis* var.

*decipiens.*—Prof. Marshall Ward exhibited a sclerotium of a Fungus produced from a Botrytis spore, and explained the method by which it had been obtained.—A paper was then read by Mr. F. Townsend, M.P., on *Euphrasia officinalis*, with a description of a new subspecies, and a discussion followed, in which the President, Mr. J. G. Baker and others, took part.—In the absence of the author, a paper by Mr. C. T. Druery, on sexual apospory in *Polystichum angulare*, was read by the Botanical Secretary, Mr. B. D. Jackson; upon which remarks were made by Mr. Murray and Dr. D. H. Scott.—Mr. Murray then gave the substance of a paper on a new genus of Green Algæ, proposed to be named *Boodlea*, and in so doing made some observations on the affinities and distinguishing characters of allied genera. The paper was criticised by Messrs. A. W. Bennett, Reay Greene, and D. H. Scott.

*March* 7. — Mr. Carruthers, F.R.S., President, in the chair.—Messrs. Herbert Stone and Malcolm Lawrie were admitted Fellows of the Society, and Messrs. John Bidgood and Christopher Mudd were elected.—A paper was read by the Rev. Prof. Henslow, M.A., F.L.S., "On the Vascular Systems of Floral Organs, and their importance in the interpretation of the Morphology of Flowers." The author drew attention to the importance of this class of observations, as supplementing development and teratology; for by referring all organs back to their "axial traces," their real origins could generally be discovered. Taking the cords metaphorically as "floral units," he explained how they can, as it were, give rise to axes as well as to all kinds of floral appendages. Quoting Van Tieghem's definitions of axial and foliar characters, the former was shown to be subject to exceptions. After describing the arrangements of the cords in peduncles and pedicels, in which endogens often have the cords as regularly placed as in exogens, the author explained the different ways by which pedicels of umbels are formed in each class respectively. The "chorism" and union of cords were illustrated, and the effects produced. Considerable light was thrown upon the cohesion and adhesion of organs, and the interpretation of the "receptacular tube" and "inferior ovary" was shown to depend upon the undifferentiated state of the organs when in congenital union. The true nature of axile and free central placentas was revealed, so that in the case of the former, with scarcely any exception, the axis takes no part in the structure, all "carpophores," "stylopods," &c., being simply the coherent and hypertrophied margins of carpels. Similarly the free central placenta of *Primula* received its interpretation as consisting of the coherent and ovuliferous bases of fine carpels, which have the upper parts of their margins coherent in a parietal manner. Illustrative diagrams were exhibited of nearly seventy genera, typical of about thirty orders.

We have to announce the death of Prof. Lindberg, which took place on Feb. 20th at Helsingfors: a notice of him by Dr. Braithwaite is held over for want of space.

# *ABIES LASIOCARPA* Hook. AND ITS ALLIES.*

By Maxwell T. Masters, M.D., F.R.S.

So much confusion has arisen concerning this tree that it may not be without interest to put on record the results of some recent investigations which induce me to concur with those who have considered it to be a distinct species. Engelmann referred it, but with hesitation, to his subsequently described *A. subalpina*, whilst Parlatore ranged it under *A. amabilis*. In the notes which follow I shall confine myself, so far as the literature of the subject is concerned, chiefly to the accounts given by those who first described the plants, and pass over the comments of those who had not the means of increasing our knowledge by personal investigations.

The three names that have to be specially considered are:—1. *Pinus* (*Abies*) *lasiocarpa* Hook.; 2. *Abies* or *Picea bifolia* of Murray, who, in speaking of this species, placed it sometimes under the one, at other times under the other generic name; and 3. *Abies subalpina* of Engelmann, with its variety *fallax*.

## Abies lasiocarpa.

The earliest mention of the tree first on the list dates from 1840, when it was described by Sir William Hooker,† under the name of "*Pinus* (*Abies*) *lasiocarpa*." Sir William, it may incidentally be mentioned, considered *Abies* to be a mere subgenus or section of *Pinus*, an opinion in which he followed the example of Linnæus, Lambert and others, and which has subsequently been adopted by Parlatore and other authors.

The maintenance of *Pinus*, however, as a distinct genus from either *Abies* or *Picea*, seems imperative on the ground of convenience, and hardly less so for scientific reasons. In Bentham and Hooker's 'Genera Plantarum' the three groups just named are treated as separate genera. The matter would not be of any great consequence were it not that it involves questions of priority and correct synonymy. Hooker's original description is invested by circumstances with so much historic importance, that it is advisable to quote it at full length:—

"Foliis linearibus obtusis (uncialibus et fere sesquiuncialibus) unicoloribus, supra linea media exarata, subtus linea media elevata, marginibus paululum incrassatis; strobilis . . . . ?; squamis latis subrotundatis extus dense fusco-pubescentibus; bracteolis late obovatis vix denticulatis squama subduplo brevioribus apice mucronato-acuminatis. Hab. Interior of N. W. America; last journey; Douglas.

"There are no entire cones accompanying the solitary specimen of this plant; but the scales and bracteoles, lying with the leaves, are considerably different from any other species with which I am acquainted. The former are clothed with a dense almost ferruginous down. The leaves, too, are longer than in any other American species."

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* For the figures illustrating this paper we are indebted to the courtesy of the proprietors of the 'Gardeners' Chronicle.'

† Fl. Bor. Amer., ii. 163.

Nuttall, in the 3rd volume of the 'Sylva,' p. 138, of which I have not been able to ascertain the exact date of publication, refers to this plant as "? *Abies lasiocarpa*," but adds nothing to what Hooker had said concerning it.

The type-specimen of Douglas, which furnished the material for Sir William Hooker's description, is preserved in the Herbarium at Kew. Andrew Murray,* in referring to this specimen, says:—"The twig has the leaves arranged as in *A. amabilis* (*grandis* of Douglas). The leaf is linear, narrower than in the ordinary specimens of that species and usually terminates in a point, although sometimes a very trifling emargination may be seen. There are a few stomata on the upper side in the middle towards the tip, arranging themselves somewhat in rows at the part where they are most numerous, and on the under side there are about six rows of stomata on each side of the midrib. The stomata are very small; the leaf is twisted at the base, and the twist is rather long. The scales preserved at Kew are small, but have the lip slightly thickened. The cones, supposing them to be mature, and judging from the size of the scales, cannot have been larger than 2½ in. long and 1¼ in. broad. The bract is slightly pedunculate; the stalk about one-third of its length, then expanded into a somewhat rounded plate with slightly jagged edges, from which a slender sharp point projects. The seed is rather more than half an inch in length, including the wing, which is usually thick and opaque, and nearly as broad as it is long, rounded in front, and with a straight back." Murray gives illustrative figures of the leaf, bracts and scales.

McNab† maintains the distinctness of Hooker's species, though unfortunately he mixes it up with sundry other specimens, which may or may not belong to the same species. Some of these I should be disposed to refer to *Abies bifolia* of Murray; indeed, they include the type of that species. The anatomical structure of the leaf of the type-specimen is correctly described and figured by McNab, t. 46, fig. 7. The leaf-structure, it may be here stated, is essentially the same in all the plants now under consideration, though there are slight modifications of detail.

Engelmann, who also examined the specimen, surmises that the description of the leaves in the Flora, as being the longest of those of any North-American *Abies*, "refers to something else, and has certainly given cause for the application of the name to the long-leaved forms of *concolor* (*A. Lowiana*), in the English nurseries." But there is no necessity to suppose that Sir William Hooker's description applies to any other tree than the one under consideration. The leaves which Hooker described were most probably longer than those of any other American silver fir then known, or of which he had specimens in his herbarium. They are not longer than some that have come to hand since, but at the time the statement was made, it was doubtless correct.

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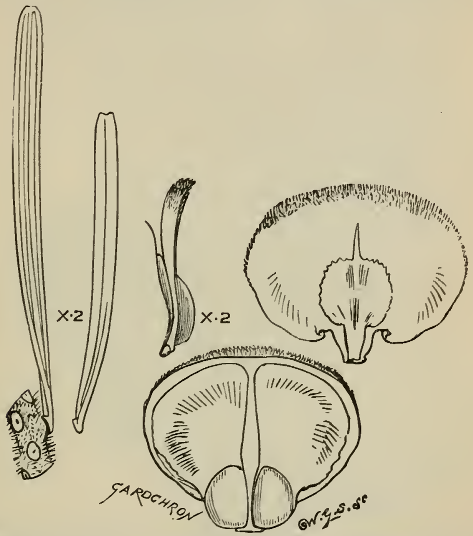
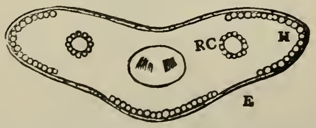
* A. Murray, 'Synonymy of Conifers' (Journ. Royal Hort. Soc. London, vol. iii., 1864, reprint, pp. 23—24, c. ic. xylog.).

† Proceedings of the Royal Irish Academy (1876) ser. 2, vol. ii. p. 682.

In the type-specimen of *lasiocarpa* from Douglas the bark is greyish, with thinly disposed, black pilose hairs. The leaves on a sterile branch, probably, are arranged as in *amabilis*, i. e., with the uppermost leaves nearly parallel with the long axis of the shoot, their tips being directed towards the end of the shoot, while the leaves on the lower side of the branch spread horizontally, or nearly so, on either side. The leaves vary in size, as mentioned by Hooker, and are grooved on the upper surface, with rows of stomata in the groove, and with similar rows of stomata on each side of the prominent midrib on the lower surface. The apex of the leaf is slightly notched in some cases, entire or pointed in others. The buds are very small, globose, dry, and not resinous. There is no perfect cone, but a large number of detached bracts and scales are preserved with the specimen. The bracts measure 9 or 10 mm. in length ; they have a short, somewhat wedge-shaped stalk, expanding into a suborbicular blade, denticulate at the margin and prolonged into a long acumen. The scale measures 12 or 13 mm.

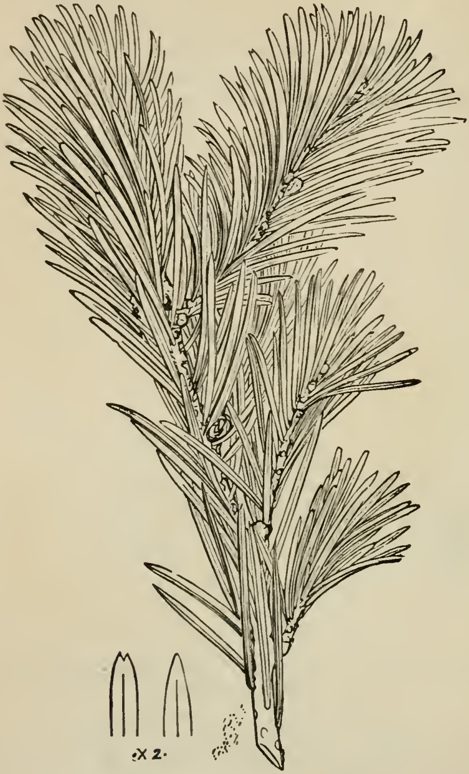


*Abies lasiocarpa* Hook.—Leaves, cone-scales, and seeds, from Douglas' original specimen.



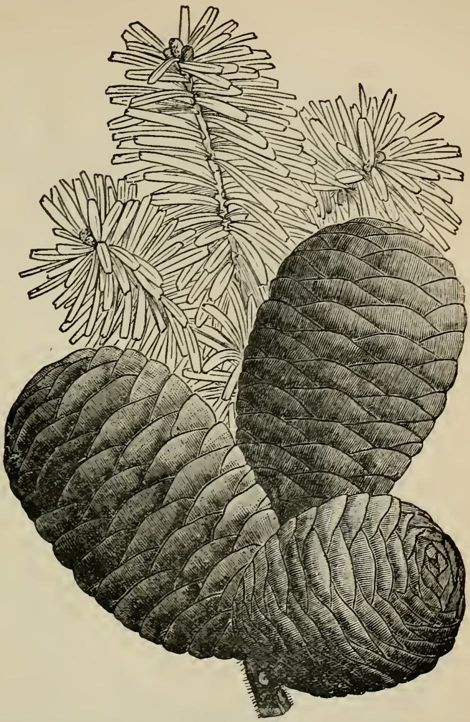
Plan of leaf-section of *A. lasiocarpa* Hook., from Douglas' original specimen, magnified; H, hypoderm ; RC, resin canal ; E, epiderm.

by 14 or 15 mm.; is shortly stalked with a roundish limb, slightly auricled at the junction with the stalk, and covered above on the dorsal side with brownish down, whence the name given to the species. It will be noted that the bract is about half the length of the scale. The seeds are somewhat shorter than the scale, with a hatchet-shaped, violet-coloured wing. At p. 131, illustrations are given of a leaf and leaf-section of cone-scales and bracts from Douglas' specimen, for the sake of comparison with those of a fresh specimen lately received from Mr. F. Moore, of the Royal Gardens, Glasnevin, and which may be provisionally referred to *lasiocarpa*, in spite of the shorter leaves. The figure at p. 133 shows the foliage of a cultivated plant, which it is probable will prove to belong to *A. lasiocarpa* Hook., although at present the evidence is insufficient to assert so much positively.

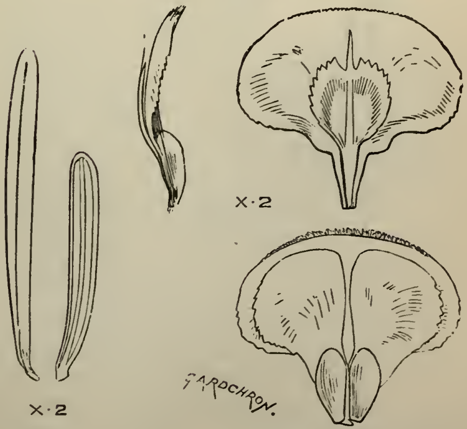


Leaves of *A. subalpina* Hort. =? *lasiocarpa* Hook. Garden specimen.

The references to *A. amabilis* made by Gordon and Parlatore, and to *A. grandis* by Engelmann, may be passed over without comment, as now known to be erroneous; but it may be added that the *A. lasiocarpa* of gardens is a form either of *grandis* or of *concolor*, or perhaps a distinct species, *A. Lowiana*, but with no right whatever, botanically speaking, to the name it commonly bears in gardens.



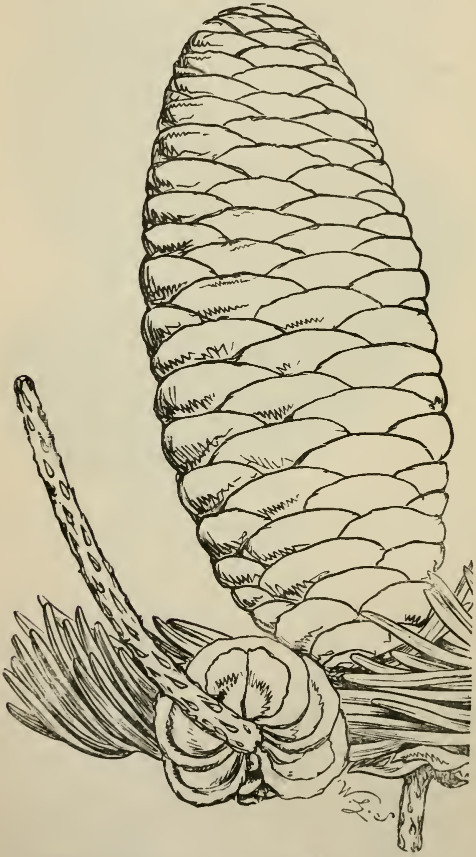
(?) *Abies lasiocarpa* Hook., from Glasnevin; cones purple.



(?) *Abies lasiocarpa* Hook.—Leaves, cone-scales, bract and seeds: from Glasnevin.

### ABIES BIFOLIA.

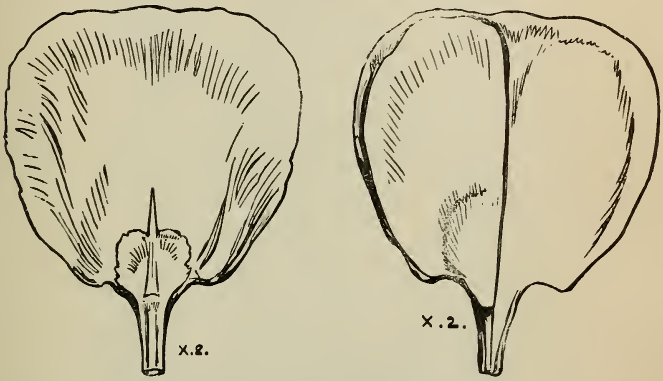
Next in chronological order comes *Abies bifolia*, originally described by the late Andrew Murray, in the 'Proceedings of the Royal Horticultural Society,' vol. iii. (1864), p. 318 (p. 29 of the reprint), and figured by him in the 'Gardeners' Chronicle,' April 10 (1875), p. 464, figs. 96, 97. This was originally described by Murray from specimens collected by Dr. Lyall "on the Galton range of the Rocky Mountains, in 49° N. lat., near the sources of the Columbia River, about 7000 ft. above the level of the sea. The native Colville Indian name is 'Marielp.'" Murray's description runs thus:—



Branch and cone of *A. bifolia* Murray (type).

"ABIES, s. g. *Picea*, BIFOLIA: foliis novis planis et apice obtuse rotundatis pedunculatis et basi semitortis; foliis vetustis apice acutis subtetragonis haud pedunculatis et haud basi tortis; amentis masculis brevibus rufo-purpureis, strobilis purpureis, squamis,

bracteis parvis sessilibus dente medio-longo; seminibus alis medio latissimis antice sub rotundatis." The type-specimens are in the Kew Herbarium. In these specimens the leaves are much shorter than in Douglas' example of *lasiocarpa*, while those on the older and fertile branches are sharply pointed and arranged all round the branch instead of in one horizontal plane. The buds are much larger and the cone-scales more oblong or squarish in outline, less auricled and the bract considerably less than half the length of the scale. Of this species specimens were collected by Roezl in New Mexico, and it is from these specimens that the figure given by Murray and here repeated, was made (See p. 134). These New Mexican specimens (if they be really such), do not differ from those from the more northern stations. I have also lately received a fresh cone, with leaves, from Mount Hood, Oregon, where it was collected by Mr. W. Stewart. This also corresponds almost exactly with the type figured here.

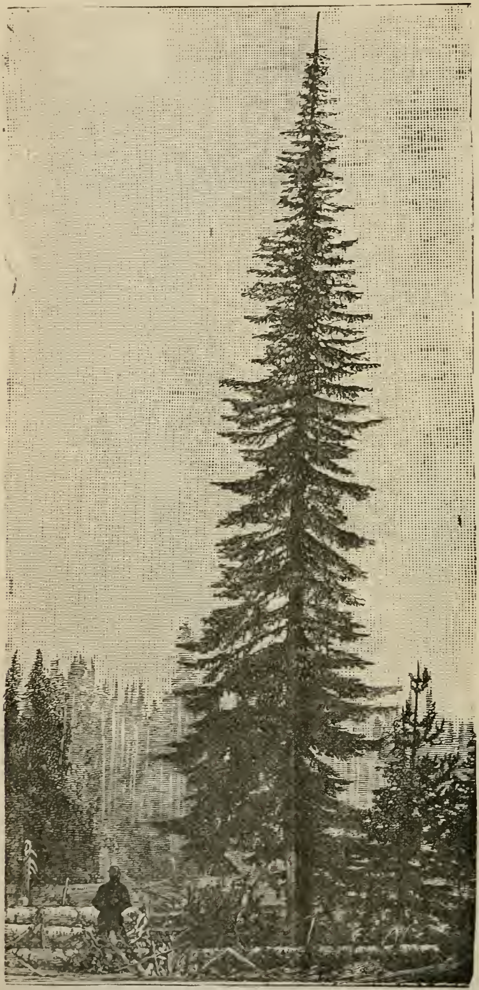


Cone-scale and bract of *A. bifolia*.

## ABIES SUBALPINA.

*Abies subalpina* of Engelmann was not described until 1876 (in the tenth volume of the 'American Naturalist'). It may be well to give a copy of Engelmann's original description:—

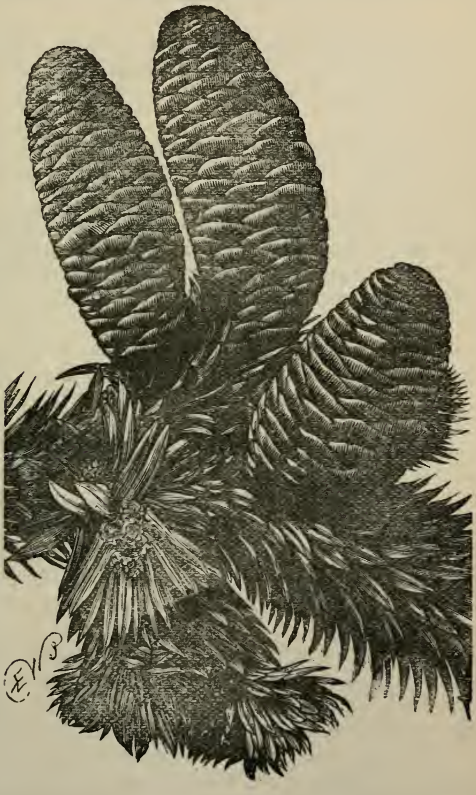
"ABIES SUBALPINA, *Eng. n. sp.*—Tall and slim, 80 to 100 feet high, often 50 feet without branches; bark smooth, white, and covered with vesicles to near the base; leaves 6 to 12 lines long, less than a line broad, not twisted near the base, bisulcate and somewhat glaucous on the lower (outer) side, short-pointed, obtuse or slightly emarginate, those on the lower branches 2-ranked and spreading, those on the upper scattered, crowded, and more or less appressed, shorter on fertile than on sterile branchlets; cones $2\frac{1}{2}$ to 3 inches long, $1\frac{1}{2}$ to 2 inches thick, solitary, erect, ovate or oblong, obtuse, greenish; scales 6 to 10 lines long and about as broad, horizontal and close-pressed, broad-cuneate, unguiculate; the rounded upper margin somewhat reflexed and resinous, pubescent; bracts short, white with a dark base, erose-dentate all round, their slightly elevated summits furnished with a strong mucro; seeds large, the wing covering nearly the whole surface of the scale; sterile aments 2 inches long, 3 lines in diameter, marked longitudinally and somewhat spirally by the dark centres of the otherwise light brown mucronate scales."—'Collected Descriptions of Coniferæ,' Engelmann, 'Botanical Works,' p. 382.



Tree of *A. bifolia* (? *subalpina*) on Mount Hood, Oregon.

The figure (p. 137) was taken from a photograph of *A. subalpina* Engelmann, forwarded from Colorado to the present writer by Dr. Engelmann himself, together with outline sketches of the leaves, cones, leaf-section, scale and bract, all of which agree closely with the corresponding parts in the typical *bifolia* of Murray.

In his "Synopsis of the American Firs" (Trans. Acad. St. Louis, vol. iii. 1878; also Gard. Chron. n. s., vol. ix. 1878, p. 300), Engelmann reverts to this species, to which he refers [*Pinus*] *A. lasiocarpa* of Hooker, and also Murray's *Abies bifolia.* It would seem then that Murray's name has precedence over Engelmann's, and it is difficult to understand why, when Engelmann had discovered this, he did not ignore the name *subalpina.* Engelmann states that Murray recognised the different forms of foliage on the tree, which suggested the name given, but misapplied the scientific name. But how Murray was in fault in this matter is not obvious.



Type figure of *A. subalpina* Engelmann, from Colorado.

The leaf-structure of *A. bifolia* is essentially similar to that of *A. lasiocarpa*, but the resin-canals are larger in diameter.

Seeing that representatives of one or other of the three forms now mentioned, occur at various elevations on a more or less continuous mountain-range, parallel to, and at no great distance from, the coast in the north, then proceeding southward and eastward along the Rocky Mountains to Colorado, and perhaps to New Mexico, the conjecture may be hazarded that all these forms belong to one species, or that they may have had a common origin. This view is supported by the variation in the size and form of the leaves of the native specimens, and especially in the young plants cultivated in British nurseries. If this view should be ultimately established, Sir William Hooker's name of *lasiocarpa* must be adopted to cover the whole. Meanwhile, for practical purposes, the grouping which seems to be most in accordance with the facts as we know them at present, is the following:—

PINUS (*Abies*) LASIOCARPA W. Hook. in 'Flora Boreali Americana, ii. 163 (1842). *Abies lasiocarpa* Nuttall, Sylva. ? *A. subalpina* Engelmann partim.

Interior of N. W. America (Columbia River), *Douglas*! *Lyall* in Mus. Kew (cones)!; Oregon, Cascade Mountains, *Moseley!*

ABIES BIFOLIA Murray in Proc. Roy. Hort. Soc. Lond. iii. (1863), p. 318.

*A. subalpina* Engelmann in 'American Naturalist,' x. 554 (1876) *pro parte;* Masters in Gard. Chron. Feb. 19, 1881, p. 236, c. ic.; Journ. Linn. Soc. Lond. 1886, vol. xxii. p. 183.

Galton range of the Rocky Mountains, *Lyall*! E. side of the Cascade Mountains, *Lyall*! *Pringle*! Columbia Valley, *Lyall*! Mount Hood, Oregon, *Stewart*! Colorado, Forest City, *Engelmann & Sargent*! *Derry*! *Brandegee*! Kelso's Cabin, *Hooker & Gray*! ? New Mexico, *Roezl.*

Var. FALLAX Engelmann in Trans. St. Louis. Acad. iii. 597.

I only know this from Engelmann's description, according to which it has "the resin-ducts of this species, but the foliage almost of *concolor*, leaves sometimes $1\frac{1}{2}$ or even $1\frac{3}{4}$ in. long, mostly obtuse, and covered with stomata above, glaucous when young."

Cascade Mountains, south of the Colombia, *Dr. Newberry* fide *Engelmann*. An imperfect specimen from Colorado, in the Kew Herbarium, appears to belong here.

The full synonymy and bibliography of these forms is given in Prof. Sargent's Report on the Forests of North America, in the Tenth Census Report (1884), p. 211, under the head of *Abies subalpina.*

Under the same heading the geographical distribution of *A. subalpina* (including *lasiocarpa* and *bifolia*) is given as follows:—"Valley of the Stakhin River, Alaska, in lat. 60° N. (Muir), south through British Columbia [at an elevation of 4000 feet], and along the Cascade Mountains to northern Oregon (*Collier*), through the Blue Mountains of Oregon and the ranges of Idaho, Montana, Wyoming, Utah and Colorado [at an elevation of 12,000 feet]."

# A NEW *CHENOPODIUM* FROM NEW ZEALAND.

### By Thomas Kirk, F.L.S.

The remarkable plant which forms the subject of this paper has for many years been known to occur in one or two isolated localities in New Zealand, having been originally discovered by Mr. J. Buchanan in 1868. In the absence of female flowers it was doubtfully referred to *C. triandrum* Forst., or *C. pusilla* Hook. f. Recently I have had the pleasure of discovering female flowers, and find that it differs from all known Australian species in its monœcious character, and so far as I am aware from all other species in the staminate and pistillate flowers alike being invariably solitary.

It usually occurs in situations where it is exposed to the influence of the sea spray, and although plentiful in each of its habitats, the habitats extend over a very small area; but to both these peculiarities there is a notable exception which deserves special mention. About eight or nine years ago I received from Mr. D. Petrie specimens collected at an elevation of 1800 feet, on the Maniototo Plains, Otago, about eighty miles from the sea, and recently had the pleasure of visiting that locality, when I found the plant growing in vast abundance on a bed of whitish clay, strongly impregnated with saline matter and extending for miles, although with occasional breaks: wherever this bed was exposed the *Chenopodium* was most abundant, together with other plants usually restricted to littoral situations.

This species forms depressed whitish-gray patches, easily recognised at a considerable distance owing to the mealy tomentum with which the plant is covered; it is excessively branched, the branches being stiff and wiry, usually appressed to the ground. The flowers are extremely minute; the female being less than half the size of the male are necessarily inconspicuous, but this is not the sole cause of their having escaped notice so long. The female perianth produced is near the base of the branchlets, and as it is of the same consistence and appearance as the farinose leaves, it closely resembles the apex of an impoverished shoot springing from the axil of a leaf, and its true nature is only shown by the short fragile stigmas, which may be easily overlooked, even by a good observer. All traces of the stigmas disappear in badly dried specimens, and it is not an easy matter to detect the female flowers on good specimens, even when they are freely developed. The yellow anthers of the male flowers, which are situate near the tips of the branches, attract attention on a cursory examination.

It affords me great pleasure to connect the name of its original discoverer, Mr. J. Buchanan, F.L.S., with this interesting species.

**Chenopodium Buchananii**, sp. n.—An annual depressed monœcious herb, clothed with farinose tomentum in all its parts; prostrate or rarely suberect, 1–3 in. high, excessively branched, branches wiry. Leaves opposite or alternate, $\frac{1}{8}$ to $\frac{3}{16}$ in. long, entire, ovate, ovate-oblong, or nearly orbicular. Flowers minute, axillary, solitary:—male, near the tips of the branches, perianth membranous, shortly pedunculate, minutely papillose, 5-cleft, segments incurved at the tips, stamens 5, exserted:—female, near the base of the branches $\frac{1}{20}$ in. long, sessile, perianth urceolate, farinose, 2-tipped, stigmas 2. Seed rounded, much compressed, puncticulate, adhering to the utricle.

Hab. New Zealand; North Island, Port Nicholson, *J. Buchanan*, *T.K.;* South Island, The Brothers Rocks, Nelson, Maniototo Plains, Otago (1800 ft.), *D. Petrie*, *T.K.;* Centre Island, Foveaux Strait, *T.K.*

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## *RANUNCULUS STEVENI* ANDRZ. AND *R. ACRIS* L.

By Frederick Townsend, M.P., M.A., F.L.S.

A. Kerner, in his 'Schedæ ad Floram Exsiccatatam Austro-Hungaricam' (1888), refers the forms of *Ranunculus* which with many botanists pass for *R. acris* L. to two species—*Ranunculus Steveni* Andrz. and *R. acris* L. The forms which may be referred to these have been thrown into confusion, in the first place by Linnæus having erroneously named his plant with creeping root *R. sylvaticus* Thuill., and secondly by Jordan and other French botanists having placed Linnæus's *R. acris* with *R. Steveni* Andrz. Kerner endeavours to disentangle the web of confusion, and, as many English botanists are unlikely to have access to the 'Schedæ,' I have thought to put them in possession of Kerner's arrangement and remarks by a short paper.

R. Steveni Andrz. in Bess. Supplem. iii. ad Catal. Plant. Hort. Botan. Gymnas. Volhyn. Cult. 1814, p. 19. — This form is distinguished by its long fleshy rhizoma, covered above with the fibrous remains of the bases of former petioles, and by the shining pubescence of its leaves. He describes three varieties:—

1. Form with long horizontal creeping rhizoma, and very short and straight-beaked carpels. = *R. Friesianus* Jord.
2. Form with long horizontal creeping rhizoma, and with decidedly hook-beaked carpels. = *R. vulgatus* Jord. in Boreau Fl. du Centre, ed. 3 (1857), p. 15. = *R. Steveni* Freyn. in Willk. et Lange Prod. Fl. Hisp.
3. Form with short, sharply-ascending rhizoma, and short and straight-beaked carpels. = *R. acris* Jord. Observ. fasc. 6 (1846).

This last form Kerner says is cultivated in the Botanical Gardens of Prague (where the normal form, No. 1, is named *R. Serbicus*), but he thinks it possesses rhizoma characters which may place it elsewhere, possibly as an intermediate form approaching *R. acris* L.

He says *R. Constantinopolitanus* of the Siebenbürger botanists, = *R. Steveni* var. *pseudolanuginosus* Bolle, is an extreme form, the divisions of the leaves being broad and obovate. Intermediate forms are *R. sylvaticus* Fries (non Thuill.). Jordan first described this as *R. Friesianus*, but afterwards changed the name to *nemori-*

*vagus*. Schur at first rightly distinguished *R. Steveni*, but afterwards named it *R. strigulosus*. His *R. malacophyllus* is the *R. Constantinopolitanus* alluded to above. True *R. Steveni*, which grows abundantly in the Gardens at Vienna, he named *R. malacophyllus*. Again, he named a broad-leaved form of *R. Steveni*, *R. Csatói*.

The geographic distribution of *R. Steveni* is remarkable. It is common in France, and from thence, southwards, ascends into the high mountain chain of Aragon. I have myself found it in Switzerland. It is rare in Germany and Mid-Europe, where Kerner says it is sporadic, being found only in the neighbourhood of dwellings; he therefore concludes it is not native either here or in Sweden. It appears again in East Hungary, East Galizia, Siebenbürgen, Roumania, and Volhynia, and is common in these countries. It does not appear to be known in Italy. Very remarkable, he says, is the appearance of two nearly-allied species associated with *R. Steveni*, viz., *R. Granatensis* Boiss. in Spain, and *R. Serbicus* Vis. in the Balkan Peninsula.

R. ACRIS Linn. Spec. Plant. ed. 1, p. 554 (1753).—This is distinguished by its stout, compact, erect, and præmorse rhizoma, the offshoots of which, arising from the axils of the root-leaves, are sessile, or connected by a short perpendicular sobole. This is a widely distributed Mid-European form. It extends into the Arctic regions. Jordan named it *R. Boræanus*, in consequence of his having referred Linnæus's *acris* to *R. Steveni*. Kerner believes that little value can be placed on characters drawn from the form of the divisions of the leaves, or from the presence or absence of hairs on the stem or petioles. In spring, he says, these may be glabrous, and the divisions of the leaves narrow, while in the autumn the stem and petioles may be hairy, and the divisions of the leaves broad. *R. Colocensis* Menyh. is only a wood form frequent in such situations. The name *R. Neapolitanus* is older than *R. Boræanus*, but Linnæus's name must be retained.

I regret that at the present moment I have neither time nor opportunity to see how far our English forms would fall into their places in Kerner's arrangement. I believe that *R. acris* L. (Jordan's *R. Boræanus*) is our commonest form. Its leaf-segments are usually narrower, and more deeply cut and lobed than those of any form of *R. Steveni*. I have never gathered nor have I seen English specimens which could be referred to *R. Friesianus*. It is a larger and stouter plant than any of our English forms of *R. Steveni*, and with very much longer rhizoma.

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## *SEDUM PRUINATUM* BROT.

By the Rev. R. P. Murray, M.A., F.L.S.

This very distinct species has been strangely confused with *S. rupestre* Huds. (*S. elegans* Lej.). In several of our best-known works, such as Hooker's 'Students' Flora,' ed. 3, Willkomm & Lange's 'Prodromus Floræ Hispanicæ,' and Nyman's 'Conspectus Floræ

Europeæ,' it is treated as identical with that plant. Even Dr. Henriquez, the Professor of Botany at Coimbra, though acquainted with the true plant, was for a time unable to escape from the general confusion. In the 'Boletim de Sociedade Broteriana,' iii. 1884, p. 208, he records in a list of Gerez Plants, "*S. pruinatum* Brot.—Brot. ii. p. 209–5. Gerez (Brot.); Leonte (J. H.). Port.—De Bragança á serra da Estrella. Area geogr.—Da peninsula iberica á Inglaterra; de Portugal á Belgica." Here the citation of the species is correct, while the geographical notes refer to *S. elegans* Lej. [N.B.—In the same list *S. altissimum* Poir. should be *S. elegans* Lej., and *S. villosum* L. should be *S. hirsutum* All.] Subsequently (in the same journal, 1888, pp. 21, 22) Dr. Mariz, of Coimbra, has corrected the mistakes of previous authors on this point, but, as his paper is little known outside Portugal, I think it well to call the attention of English students to the point. In June, 1887, I myself collected the plant in the Gerez, but, misled by the erroneous synonymy referred to above, concluded that I had collected *S. amplexicaule* DC., to which *S. pruinatum* bears a very close resemblance in habit, though differing in the structure of the leaves, and in some other points. I owe the correction of this error to Dr. Henriquez.

So far as at present known, *S. pruinatum* is confined to a very small area in, or close to, the Gerez district, in the extreme north of Portugal. Consequently it has been seen by very few botanists, and probably hardly exists in any herbarium outside Portugal. This will account for the confusion which has arisen, though it is hard to see how Brotero's description in 'Flora Lusitanica' could be supposed for a moment to apply to *S. elegans*, or to any species at all like it. It is as follows:—

"SEDUM PRUINATUM. — S. Foliis carnosis, oblongis, convexo-planiusculis, basi solutis; caule erecto, ex glauco pruinoso, inferne ramoso; cyma bifida; calycis foliolis sex, acutis, lanceolatis.

Hab. in Gerez, et ad Rio Homem in Duriminia. Fl. æstate: Ann.

Planta viva nondum mihi occurrit; ex specimine sicco a Cl. Prof. Link communicato: Radix fibrosa, annua. Caulis filiformis, leviter angulatus, quinqueuncialis, erectus, basi ramosus, dein simplicissimus, glaber, et ex glauco pruinosus, ut tota planta. Folia sparsa, oblonga, basi soluta et auriculata, carnosa et ex convexo planiuscula, quantum potui in sicco specimine conspicere. Cyma sæpius bifida, ramis simplicissimis, paucifloris, floribus breviter pedunculatis. Calyx sæpius hexaphyllus, foliolis lanceolato-subulatis, pruinosis. Corollæ petala sex, acuminata, lanceolata, calyce fere duplo majora. Stamina duodecim. Pistilla sex."—'Flora Lusitanica,' ii. 209–10.

This description is accurate, except in one respect. The plant is perennial, not annual. The colour of the flowers is a somewhat pale yellow. The most curious feature about the plant is afforded by the wiry, filiform branches, 5 or 6 in. long, thrown off from near the base of the stem. These are quite naked, except at the tip, where they are clothed with a dense cone of leaves. In the autumn these cones throw out rootlets, and presently establish themselves as independent plants. It grows in sandy ground by the River Homem, and more sparingly in very dry places on the hill-side by the track leading from S. João do Campo to Caldas do Gerez. The species is well figured in the Boletim da Soc. Brot. for 1888.

# NOTES ON *EPILOBIA*.

## By the Rev. Edward S. Marshall, M.A., F.L.S.

A perusal, last spring, of Professor C. Haussknecht's 'Monographie der Gattung Epilobium' (Gustav Fischer, Jena, 1884), led me to believe that work still remained to be done at our British Willow-herbs. I therefore collected such specimens that came in my way as looked at all remarkable, and recently sent them, together with some others gathered by Messrs. W. F. Miller, W. W. Reeves, &c., for determination at Weimar. The results are encouraging, and I hope to continue these investigations in the coming season.

Dr. Haussknecht, in his Introduction (p. vi.), remarks:—"Of constant varieties I have hitherto met with no instances." Accordingly, in the Monograph, variations from type are ranked as 'forms' only.

The existence of hybrids in the genus can hardly be doubtful to anybody who has examined the question. Those gathered by myself were sent without any suggestion as to their origin, and in every case but one I have satisfied myself since of the occurrence of both parents in the locality.

*Epilobium collinum* Gmel., already detected by Mr. Druce in Perthshire, is quite likely to occur in various hilly districts of England and Wales. *E. lactiflorum* Hausskn., *E. Hornemanni* Reichb., and *E. davuricum* Fischer, are Scandinavian plants not yet known as British, but any (or all) of them may be reasonably expected in Scotland.

E. angustifolium L., f. *brachycarpa* (*E. brachycarpum* Leighton). Near Tilford, Surrey; apparently native. I have never seen this plant cultivated anywhere in the neighbourhood; and the assertion that it is only a garden stray in this country seems to lack proof. Monograph, pp. 41–2:—"That the two alleged species [*E. macrocarpum* and *E. brachycarpum*] had no claim to recognition, might have been foreseen; for every possible intermediate between the reputed points of difference is to be met with. The sterility of the one form [*brachycarpum*], which is adduced as an argument in favour of its naturalisation, is only due to the absence of suitable insects to fertilize it; an occurrence also frequently observed with us."

E. parviflorum Schreb., f. *aprica*. Tilford and Witley, Surrey. I also have it from Savernake, Wilts. A form of dry places, and swamps where the soil is clayey or peaty.

f. *brevifolia*. Chalk bank, Headley Lane, Surrey; and garden, Forest Row, Sussex; both sent by Mr. Reeves.

E. MONTANUM L., f. *minor*. Common in W. Surrey. In shade the leaves are broader, bright green, rather flaccid; in sunny spots the flowers are smaller, more deeply coloured, and the general tint is grey-green. About 6 or 8 inches high.

E. LANCEOLATUM Seb. & Maur., f. *parvula*. Bank near St. Heliers, Jersey (Mr. Reeves). At first sight looking like a small state of *E. roseum*.

E. ADNATUM Griseb. (*E. tetragonum* auct.). From two stations, near Eye, E. Suffolk; not recorded for v. c. 25 in 'Top. Bot.' Mon. p. 99: "Whether Linné really knew our plant, is doubtful" . . . p. 108: "It is more reasonable to assume that Linné did not know, or rather did not distinguish, *E. adnatum*, whereas our *E. Lamyi* was very well known to him . . . . A comparison of the material accessible in Linné's works gives the following result:—

"(1). In Hort. Cliffort. *E. adnatum*, *Lamyi*, *obscurum* and *roseum* (assuming that he knew them all), are combined as small-flowered forms of his *E. foliis lanceolatis serratis*, viz., under δ *Chamænerion villosum minus parvo flore* Tournef.

"(2). In Spec. plant. ed. 1, Linné founded his *E. tetragonum* on Sauvage's phrase ['*E. foliis lanceolato-linearibus denticulatis, imis oppositis*'].

"(3). Of Linné's quotations, '*Lysimachia siliquosa glabra minor* C. Bauh. Pin.,' applies equally to *E. roseum* with the other three species, whereas that from Ray, Hist. 861, can apply only to those three. The '*Lysimachia minor* Tabernæmont.' certainly represents *E. roseum*.

"(4). The addition, '*summitas adhuc tenella nutans,*' is found first in the *2nd* edition of the Spec. Plant.

"(5). Our *E. roseum* lies in his herbarium, with the above addition. Hence it is clearly evident that Linné combined all four species under Sauvages' phrase, while he borrowed the addition in ed. 2 with special reference to *E. roseum*.

"The occurrence of *E. Lamyi* in his herbarium, in place of *E. parviflorum*, sufficiently proves that herbarium-specimens are not always decisive.

"That under these circumstances an application of the Linnean name *E. tetragonum* to any of the species is quite out of the question, needs no further argument."

E. OBSCURUM Schreb., Roth (*E. virgatum* Lam., Fr.). In my neighbourhood this plant varies immensely, according to situation. It seems equally at home in all soils, whether wet or dry.

f. *annua*.* Witley, Surrey, in light loamy garden-ground, and in wealden copses.

f. *strictifolia*. Sandy field, Parkstone, Dorset (Mr. Reeves). "Occasionally confounded with *E. Lamyi*, owing to the absence of stolons at the flowering-season" (Mon. p. 115).

f. *minor*. Sandy ground, in fir-plantations, near Tilford, Surrey. An annual (?) plant of light, dry soils.

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* This term is used in the Monograph for a seedling plant, in its first flowering-season.

f. *elatior*. Wet and shady wealden ditch, near Witley. Fully a yard high.

f. *flaccida*. In several shady copses on sand and clay, near Witley. Leaves thin, mostly deflexed; plant slender.

f. *ramosissima*. Garden-ground, Witley. Much branched from the base upwards; branches curved, ascending.

E. Lamyi F. Schultz. This species is attributed to Wirtgen in Lond. Cat. ed. 8, probably from its having been distributed among his exsiccata; but it is his '*E. virgatum*' (Mon. p. 109). It is also only credited to one English county, presumably Worcestershire, where Mr. Towndrow found it in 1885 (J. of B. p. 349, 1885). But Prof. Haussknecht mentions a specimen from a brickfield, Middlesex, in Herb. Brit. Mus.; and also found it growing near Hampton Court, as well as (Mr. Beeby informs me) near Richmond. Both these stations are probably in Surrey. Other counties are cited (Mon. p. 107) from Watson, 'Cybele,' p. 512. I had some doubt about this being correct, so wrote to Mr. Arthur Bennett on the point. He kindly sent me the following extract, adding that Watson only gave the localities as *reported*, without intending to *vouch* for their correctness.

"*E. Lamyi* is a plant recently found in Kent, by Mr. T. Moore, and suggested by Mr. Babington to be the species imperfectly described under that name in Gren. and Godron's 'Fl. de France'; and who remark that it is 'extremely near *E. tetragonum*.' I have seen it in several places in N. Surrey and N. Hants, and have not hitherto satisfactorily distinguished it from ordinary *E. tetragonum*, although there are some physiological differences by which it may usually be recognized. It represents *E. virgatum* (Fr.) with some good British botanists, although placed in a different section by Grenier and Godron."—Wats. 'Cyb.' iii., p. 350 (1852). Yet, in 'Comp. of Cyb. Brit.,' 1870, p. 512, he says:—"*Epilobium Lamyi* 'F. Schultz.'—Provinces 2, 3, 4, 5. Kent, Mr. T. Moore. Hants, Hereford, &c. Ambiguity. Cybele iii. 350. Phytol. iv. 933. Apparently poor examples of *E obscurum* so named." I rather doubt whether British botanists had distinguished *E. obscurum* so early as 1852; and the '*tetragonum*' intended in the above quotation may have had reference to that plant. Still, I am sure that *E. Lamyi* will prove to be not uncommon in the south of England; it appears to be more frequent than *E. adnatum* in W. Surrey. I found it in three parishes:—near Witley, on wealden clay and sand; near Tilford, on sand; and near Ash Green, in ditches on clay, below the chalk. It also occurred in a wood on the chalk, near Wye, E. Kent. I append some helpful extracts from the Monograph (p. 109). "The development is exactly like that of *E. adnatum;* the rosettes are, as a rule, more tender, the colour of their leaves darker green, more shining, shading off towards blue-green, while those of *E. adnatum* incline more to yellow-green" . . . "The assertion of F. Schultz in 'Pollichia,' 1855, that *E. Lamyi* is annual and dies off in winter, together with the off-sets, which only appear long after the flowering-season, was erroneous. I have found, on the contrary, that the rosettes stand even the severe winters of Thuringia quite well. The rosettes, too, already appear shortly before the seeds ripen." . . . "At the first glance it is distinguishable from *E. adnatum* by the more glaucous green of the smaller, much more distant, and less deeply dentate leaves; by the short pubescence, which is particularly well-marked at the time of flowering; and also by the rose coloured flowers, twice as large, and always opening, even in the same localities, several weeks earlier than in *E. adnatum*." Dr. Haussknecht, who has evidently had exceptional facilities at Weimar for the constant comparison of the two plants, pronounces emphatically in favour of their specific difference. The forms I have hitherto met with he names *annua*, *biennis*, *aprica*, *pusilla*, and *umbrosa*.

E. PALUSTRE L., var. *lavandulæfolium* Lecour & Lamotte. Mr. Beeby sent this from Shetland, and Mr. Miller from Invervar, Glen Lyon, Mid-Perth. I believe I have seen it in the Braemar district and in Caithness; and it probably occurs throughout Britain.

f. *minor simplex angustifolia* = *E. lineare* Krause. An elegant little state, found by Mr. Miller on the shores of Loch Kinnardlochy, Mid-Perth.

E. ANAGALLIDIFOLIUM Lam. During three seasons' visits to the Scotch mountains I have been unable to detect any '*alpinum*' distinct from this, as separated in our handbooks. Mon. p. 154:—"In Babington, 'Man. Brit. Bot.' ed. 7 (1874), an *E. alpinum* is separated off from *E. anagallidifolium* Lam.; the former having "stoles or barren stems æstival rosulate," the latter, 'stoles or barren stems æstival leafy not rosulate.' Hooker also distinguishes a 'var. *anagallidifolia*' in 'Stud. Flora.' From the appearance of the corresponding specimens in Mus. Brit., the first is the taller, slender form, growing in very damp, shady places, with larger, laxer, longer-stalked and, proportionately, narrower leaves; the other being the small, compact form of open ground." It therefore seems best to expunge *E. alpinum* from our list.* In the Kew Herbarium are specimens of *E. alsinefolium* × *anagallidifolium*, labelled 'Clova, Forfar (Gardiner)'; 'Glen Dole, Forfar,' with the parents (Mon. p. 167). Can it be that this or another hybrid may account for the separation above-named? I think it the more probable, as Prof. Babington referred my own herbarium-sheets of *anagallidifolium* × *obscurum* from W. Sutherland to *E. anagallidifolium*, from their resemblance to a cultivated plant so named by the late Mr. Watson; an opinion in which I cannot at all concur.

E. ADNATUM × OBSCURUM = *E. Thuringiacum* Hausskn. Lane near Witley, Surrey, on the border of the green sand and the wealden. New to Britain, and apparently only known hitherto from the Ettersberg, near Weimar. Just intermediate between the parents!

E. LAMYI × MONTANUM = *E. Haussknechtianum* Borbas. Sandy ground near Tilford, Surrey. New to Britain.

E. MONTANUM × OBSCURUM = *E. aggregatum* Celakovsky. A fasciate monstrosity of this was gathered at Lawers, Mid-Perth, by Mr. Miller. Apparently not before detected in Britain.

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* I see that Messrs. Groves suggest a return to '*E. alpinum* L.'; but it is surely better to follow the monographer of the genus.

E. MONTANUM × PARVIFLORUM = *E. limosum* Schur. Railway-bank near Witley, Surrey, in considerable quantity. A small state was sent to me by Mr. Bennett, collected by Prof. Oliver at Dufton, Westmoreland.

E. PALUSTRE × PARVIFLORUM = *E. rivulare* Wahlenberg. Sandy ride in a fir-plantation, near Tilford, Surrey. I noticed *E. parviflorum* here, but not *E. palustre*, which may, however, have been overlooked. It abounds at no great distance, so that insect-fertilisation would easily account for the occurrence of this hybrid. In future editions of the 'London Catalogue,' it would be well to expunge the varieties at present given, substituting a list of hybrids, as has been done in the case of *Primula* and *Rumex*.

E. PARVIFLORUM × ROSEUM = *E. persicinum* Reichb. Wet ditch, Middleton, Pickering, Yorks (Mr. Reeves). Not named in Hooker, Stud. Fl., as British; but Prof. Haussknecht mentions a specimen from Derbyshire in herb. Hooker, at Kew.

I am cultivating a good many forms this season, and shall be glad to transmit any doubtful plants that may be sent to me for identification.

## SEXTUS OTTO LINDBERG.

MANY botanists in this country—but especially bryologists—will regret to hear of the death of Sextus Otto Lindberg, Professor of Botany at Helsingfors, on Feb. 20th (March 4th), a few weeks before completing his fifty-fifth year; but to those who enjoyed the pleasure of his friendship, his loss will indeed be felt, for he possessed fully the kindness of heart and warm affection so characteristic of the Swedish people. His whole soul was concentrated on the study of Mosses and Hepaticæ, and he undertook several laborious journeys through Lapland and Norway in quest of the objects of his devotion, putting up with scanty fare, and poor lodging, and wading through rivers sometimes as often as thirty times in a day, but always returning with a load of treasures, for his keen eye permitted few things to escape him. In 1865 he married an English wife, the widow of Lieut. O. Samson, R.N. who was killed in the war with China.

Lindberg paid two visits to England, the first in 1872, when he examined the herbaria at the British Museum, Kew, and Oxford, publishing in this Journal for 1874 (pp. 38–47) the result of his identification of the specimens in Buddle's and Dillenius's collections; the second in 1873, when he spent some weeks with Moore in Ireland, collecting Hepaticæ.

Of the numerous papers written by Lindberg, many—to our disadvantage—are in Swedish, some in Latin, and a few in English, French, or German, and were chiefly communications to the 'Oefversigt Vetenskaps Akad. Foerhandl.,' the 'Botaniska Notiser,' and the 'Acta Soc. Scient. Fennicæ,' of which Society he was

President. Many of these papers may be thought to deal with small matters, yet every one is elaborated with the care and completeness of an important treatise, the most punctilious attention to correctness being a marked feature in everything he undertook. He will, however, be longest known by the active part he took in rigidly carrying out the law of priority in nomenclature, a law admitted by all botanists, yet, strangely enough, but little acted on. Lindberg, however, went in for it thoroughly, and brought on himself no little odium as an innovator; his example, however, has not been in vain, for both in this country and America some of the most learned botanists have taken the same line of action with respect to flowering plants, and have thus commenced to lighten the intolerable burden that would sooner or later have to be dealt with. I believe he had been for years engaged on a synonymic list of mosses, with references to every known publication, but probably waiting for the ever-receding goal of 'completeness,' daily becoming more unattainable by the ever-widening field of literature, it has not yet seen the light.

Amongst his more important papers may be mentioned, 'Torfmossornas byggnad Utbredning och systematiska Uppställning,' 'De Tortulis et cet. Trichostomaceis eur.,' 'Obs. de formis pr. eur. Polytrichoideorum,' 'Rev. crit. Iconum fl. danicæ,' 'Hepaticæ in Hibernia lectæ,' and 'Contr. ad fl. crypt. Asiæ bor.-orient.' That he filled a high and useful place in bryology, all must admit who have studied his writings, a place that can only be occupied by the rare combination of a bibliophile and ardent practical botanist.

Although Lindberg's main work was devoted to Mosses and Hepatics, he did not confine his attention to these groups, as is shown by his paper on *Monotropa*, translated by him for this Journal (Journ. Bot. 1873, p. 180), his note on *Hydrocharis* (Trans. Bot. Soc. Edinb. xi. 389), and various contributions to the 'Ofversigt.'

Last summer he was suffering from what he termed rheumatism in the head, but an attack of hemiplegia in the autumn proved that these pains were of far graver import. To him the writer is indebted for much advice and guidance on critical mosses. Lindberg's practical knowledge of these plants, and the exhaustive examination of his specimens lent weight to his opinions, which were valued by workers of all countries: we should indeed have rejoiced if he could have been spared to us a little longer.

R. Braithwaite.

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# BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.

By James Britten, F.L.S., and G. S. Boulger, F.L.S.

(Continued from p. 116).

**Horman, William** (d. 1535): b. Salisbury; d. Eton, Bucks, 1535. Fellow of New College, Oxford, 1477; of Eton, 1485. Vice-Provost. 'Herbarum Synonyma.' Pult. i. 25; Haller, i. 245; Tanner, Bibl. Brit. Hib. 391.

**Horne, Edward** (d. 1851): d. Florence, 18th March, 1851. B.C.L., Oxon. F.L.S., 1812. Companion of Joseph Woods in botanical excursions. Proc. Linn. Soc. ii. 132.

**Horner, Dr.** (fl. 1800). Algologist. Collected in Japan, Corea, &c. Correspondent of Dawson Turner. *Fucus Horneri* Turn.

**Horsefield, John** (d. 1854): d. Prestwich, Manchester, 6th March, 1854. Weaver. Thirty-two years President of Prestwich Bot. Soc. Raised *Narcissus bicolor Horsfieldii.* Cash, 67.

**Horsefield, William** (1816?–1883): b. Besses-o'-the-Barn, Manchester, 16th April, 1816?; d. same place, 17th Jan. 1883. Postman. President, Prestwich Bot. Soc. Journ. Bot. 1883, 192; Gard. Chron. 1883, i. 122.

**Horsenell, George** (fl. 1696). "Chirurgion in London." Correspondent of Ray, R. Syn. ed. 3, 196, 263. Brought plants from Antigua to Plukenet, Pluk. Alm. pp. 155, 240.

**Horsfield, Thomas** (1773–1859): b. Bethlehem, Pennsylvania, 12th May, 1773; d. London, 14th July, 1859. M.D. F.L.S., 1820. 'Pl. Javanicæ rariores,' 1838. Pritz. 151; Jacks. 142; Proc. Linn. Soc. 1860, xxv.; Lasègue, 494; R. S. C. iii. 441. *Horsfieldia* Willd. = *Pyrrhosa. Horsfieldia* DC.

**Hosack, David** (1769–1835): b. New York, 31st Aug. 1769; d. New York, 22nd Dec. 1835. M.D., Edinb. F.R.S., 1817. F.L.S., 1797. Prof. Bot., Columbia College, 1795. Pupil of Smith. 'Hortus Elginensis,' 1811. Loudon, Gard. Mag. xii. 276; Amer. Journ. Sci. Arts, xxix. 395. Drake, Dict. Americ. Biog. *Hosackia* Dougl.

**Houstoun, William** (1695–1733): b. Scotland, 1695: d. Jamaica, July, 1733. M.D., Leyden, 1728 or 1729. F.R.S. Correspondent of Miller. Collected in Central America and W. Indies. 'Reliquiæ Houstonianæ,' 1781, with engravings by himself. Phil. Trans. xxxvii.; Bot. Biol. Centr. Amer. iv. 118; Hb. Sloane, 146; Pult. ii. 231; Rees; Pritz. 151; Jacks. 111. MSS. and plants in Brit. Mus. *Houstonia* L.

**Hove, Anthony Pantaleon** (fl. 1787–8). M.D. A Pole. Collector employed by Banks and Kew. In India in 1787–88. 'Tours . . . . in Guzerat, Kattiawar, and the Conkuns, in 1787–88,' published by Alexander Gibson for Bombay Gov., 1855. *Hovea* R. Br.

**How, William** (1619–1656): b. London, 1619; d. London, 30th Aug. 1656; bur. St. Margaret's, Westminster. Physician. B.A., Oxon, 1641. M.A., 1645. Practised in Laurence Lane and then in Milk Street. 'Phytologia Britannica, 1650. Lobel's 'Illustrationes,' 1655. Pritz. 151; Jacks. 561; Wood, Athen. Oxon, iii. col. 418.

**Howard, John Eliot** (1807–1883): b. Plaistow, Essex, 11th Dec. 1807; d. Tottenham, 22nd Nov. 1883; bur. Tottenham Cemetery. Quinologist. F.L.S., 1857. F.R.S., 1874. 'Nueva Quinologia,' 1862. 'Quinology of E. Indies,' 1869. Pritz. 151; Jacks. 561; R. S. C. iii. 450; vii. 1023; Proc. Linn. Soc. 1883–4, 35; Gard. Chron. 1883, ii. 701; Trans. Essex Field Club, iv. 8, with portr. *Howardia* Wedd.

**Howitt, Godfrey** (1800–1873): b. Heanor, Derbyshire, 10th Nov. 1800; d. in Australia, 1873. M.D., Edinb. F.B.S., Edinb.,

1838. 'Muscologia Nottinghamensis,' 1833, specimens with letterpress. 'Nottinghamshire Flora,' 1839. Contributed lists of Stafford, Derby, Carnarvon, and Notts plants to New Bot. Guide (p. 640). Pritz. 151; Jacks. 258. *Howittia* F. Muell.

**Howitt, Mary,** *née* **Botham** (1797–1888): b. Coleford, Gloucestersh., 10th March, 1797; d. Rome, 30th Jan. 1888; bur. English Cemetery. 'With the Flowers' (poems). Knew British plants well. 'Month,' July, 1888, p. 339.

**Hoy, James** (fl. 1793). Of Gordon Castle. A.L.S., 1788. F.L.S., 1793. Eng. Bot. 146, 289. R. S. C. iii. 452.

**Hoy, Thomas** (fl. 1790–1809). F.L.S., 1788. Gardener at Syon. Member of first Council R. Hort. Soc. "An intelligent and successful cultivator," Brown in Mem. Wern. Soc. i. 26. *Hoya* Br.

**Hudson, William** (1730–1793): b. White Lion Inn, Kendal 1730; d. Jermyn St., London, 23rd May, 1793; bur. St. James', Piccadilly. Apothecary. F.R.S., 1761. F.L.S., 1791. Præfectus horti Chelseiani, 1765–1771. 'Flora Anglica,' 1762; ed. 2, 1778. Rees. Pritz. 152; Jacks. 233; Semple, 88. Nicholson, 'Annals of Kendal,' 345. *Hudsonia* L.

**Hughes, Rev. Griffith** (fl. 1707–1750): b. Towyn, Merioneth, 1707? M.A., Oxon? 1748. F.R.S. Rector of St. Lucy's, Barbados. 'Nat. Hist. of Barbados,' 1750. Pritz. 152; Jacks. 369.

**Hughes, William** (fl. 1672). Lived in Jamaica. 'The American Physitian; or a treatise of the roots, plants, . . . . in the English plantations,' 1672. 'The Compleat Vineyard,' 1670; 'The Flower-garden,' 1672; 3rd ed., 1683. Pritz. 152; Jacks. 360.

**Hull, John** (1764–1843): b. Poulton, Lancashire, 1764; d. Tavistock Square, London, 17th March, 1843 (not 1839, as stated in Proc. Linn. Soc. i. 34). Of Manchester. M.D., Leyden, 1792. F.L.S., 1810. L.R.C.P., 1819. 'British Flora,' 1799. 'Elements of Bot., 1800. Proc. Linn. Soc. i. 34; Pritz. 152; Jacks. 561; Munk, iii. 195.

**Hulme, J. R.** (fl. 1842). M.D. Practised at Scarborough. 'The Scarborough Algæ,' 1842, illustrated by specimens. Jacks. 504.

**Hume, Lady Amelia** (d. 1809): d. Wormleybury, Herts, Sept. 1809; bur. Wormley. Wife of Sir Abraham Hume. Pupil of Sir J. E. Smith. Rees sub v. 'Humea.' *Humea* Roxb. = *Brownlowia* Roxb. *Humea* Sm. = *Calomeria* Vent.

**Humfrey, or Humphrey, William** (fl. 1771). Of Norwich. Friend of Smith. Discovered *Baltarea phalloides*. Contributed to Eng. Bot. (182, 805, 956). Linn. Trans. vii. 297.

**Humphreys, Henry Noel** (1810–1879): b. Birmingham, 1810; d. London, June, 1879. Artist. 'Gallery of Exotic Flowers,' 1855. Drew for 'Floral Cabinet,' and Moore's Mag. Bot. Jacks. 117; 'Garden,' xviii. 1880, p. xii., with portr.

**Hungerford, —.** (fl. 1757). M.D. Collected at Montpellier, Hb. Sloane, 35.

**Hunneman, John** (d. 1839): d. London, March, 1839. A.L.S., 1831. Ass. Bot. Soc. Edinb. Sweet, Brit. Fl. Garden, iii. 276; 3rd Report, Bot. Soc. Edinb. 14, 52; Proc. Linn. Soc. i. 36. *Hunnemannia* Sweet.

**Hunt, George Edward** (1841?–1873): b. 1841?; d. Bowdon, Cheshire, 26th April, 1873; bur. St. Saviour's, Manchester. Muscologist. Mosses at Kew. Papers in Mem. Lit. Phil. Soc. Manchester. Journ. Bot. 1873, 191; R. S. C. vii. 1037.

**Hunt, Thomas Carew** (fl. 1845–1870). H. B. M. Consul for the Azores, 1844–1848, Journ. Geogr. Soc. 1845. Plants distributed through Bot. Soc. London. Journ. Bot. 1847, 381; Godman, 'Nat. Hist. of Azores,' 1870, 117. *Ammi Huntii* Wats.

**Hunter, Edward** (fl. 1812). Steward at Caen Wood, Hampstead. A.L.S., 1790. Contributed list of plants to Park's 'Topography of Hampstead.'

**Hunter, John** (1728–1793): b. Kilbride, Lanark, 14th July, 1728; d. St. George's Hospital, 16th Oct. 1793. Comparative Anatomist. F.R.S., 1767. 'Memoranda on Vegetation,' 1860. Founded Hunterian Museum. Pritz. 153; Jacks. 70; Life by Sir Everard Home; Chalmers. Engr. by Sharp, from portr. by Reynolds.

**Hunter, William** (fl. 1795–1807). M.D. Of Bengal Medical Establishment. "An eminent botanist," Roxb. Fl. Ind. ii. 565. 'Asiatick Researches,' iv.–ix. 1795–1807. Plants at Glasgow. R. S. C. iii. 476. *Hunteria* Roxb.

**Huntingdon, Henry of** (circ. 1154). Prior of Huntingdon. Chronicler. 'De Herbis . . . . ,' MS., Bibl. Bodl. 6353. Pult. i. 21–2; Haller, Addenda, i. 216; ii. 657; Tanner, Bibl. Brit.-Hib. 395.

**Hurst, Henry Alexander** (c. 1825?–1882): b. c. 1825?; d. Liverpool, 1882. Merchant. Of Knutsford, Sale, and Liverpool. Studied *Silene* and *Leguminosæ*. Collected with Letourneaux in Egypt, especially near Ramleh. Papers in Mem. Lit. Phil. Soc., Manchester. Herbarium in possession of Charles Bailey, Esq. Proc. Lit. Phil. Soc., Manchester, xviii. 183; R. S. C. vii. 1041.

**Hussey, Mrs. T. J.** (fl. 1847–1855). 'Illustrations of British Mycology,' 1847–55. Pritz. 153; Jacks. 244. *Husseia* Berkel.

**Hutchins, Miss** (d. circ. 1816). Algologist and muscologist. Of Bantry. Contributed largely to Eng. Bot. (1915, 2480, 2523, 2652, &c.), and to Dawson Turner's 'Fuci' and 'Lichenographia.' Turner, 'Fuci,' iii. 4; iv. 152. *Hutchinsia* Agardh = *Polysiphonia* Grev. *Hutchinsia* Br.

**Hutton, —.** (d. before 1835): d. Keswick. Of Keswick. Guide to the Lakes. Gave much erroneous information as to Lake plants. Bot. Guide, 143; New B. G. 310; Baker, Fl. Lake District, 10.

**Hutton, William** (1797–1860): b. Sunderland, 1797; d. West Hartlepool, 1860. Geologist. 'Fossil Flora of Great Britain' (with Lindley), 1831–7. Jacks. 562. *Huttonia* Sternb.

**Hyde, Rev. Thomas** (1636–1703): b. Billingsley, Yorks., 16th May, 1636; d. Oxford, 18th Feb. 1703. Orientalist. D.D., 1680. Canon of Christchurch, 1697. Keeper of the Bodleian, 1665–1701. 'Epistola de mensuris . . . sinensium . . . necnon de Herbæ Cha . . . ,' 1688. Pritz. 153; Jacks. 198; Biog. Brit.

(To be continued.)

## SHORT NOTES.

Is Hypnum catenulatum Brid. a North American Moss?—On page 320 of the 'Manual of the Mosses of North America,' (Boston, 1884), Lesquereux and James make the following remark as to the habitat of *Hypnum catenulatum* Brid.:—"Hab. Mount Ingleborough, New York (*Nowell*, fide Schimpr in Syn. ed. 2, 605). We have never seen an American specimen of this moss, nor can we find trace of the locality given by Schimper." Now, what Schimper actually says (*loc. cit.*) is:—"Plantæ steriles sæpe tenuissimæ longe filiformes, foliis dimidio fere minoribus submuticis paulum laxius textis reperiuntur; formam hanc, colore atro-viridi insignem, cl. Nowell in Monte *Ingleborough* comit. Eboracensis legit." This, of course, is a well-known locality in Yorkshire, and the late John Nowell was an energetic bryologist of that county. The American authors have made the mistake of supposing thatNew York State was intended. However, there yet remains No. 219 of Thomas Drummond's 'Musci Americani' (1828), which was issued under this name, with the remark:—"Hab. Upon rocks, rare; not found in fructification." With regard to it, Wilson (Journ. Bot. 1841, p. 439) says:—"Certainly a distinct species. In a moist state this moss is remarkable for its strongly-aromatic scent, resembling the plant called Foenugreek." But later ('Bryologia Britannica,' 1855, p. 358), he says:—"No. 219 of Drummond's 'Musci Americani' is a variety of *H. catenulatum*." But, according to Bruch and Schimper (Journ. Bot. 1843, p. 668), it "is entirely distinct from the European plant." The actual set of Drummond's mosses submitted by R. J. Shuttleworth to Bruch and Schimper, and containing the specimen upon which they pronounced this opinion, is now in the herbarium of the British Museum. This certainly differs considerably from Hampe's notion of that species. It would be extremely interesting to know whether fruiting specimens of this moss have been found in North America, and, if so, what conclusion has been arrived at with regard to their determination.—Antony Gepp.

Melampyrum sylvaticum in Caithness?—In the interesting list of Caithness plants now publishing in the 'Scottish Naturalist,' *Melampyrum sylvaticum* is included, on the faith of a reference by Smith in Fl. Brit. ii. 653. Roemer's edition (the one quoted) corresponds with the original in printing the locality in question, "Wick Cliffs, nr. Swayne, With."—not, as cited in Scot. Nat. (April, 1889, p. 78), "At Wick Cliffs, near Swayne, With." The authors of the list go on to say, "Certainly Smith's reference to Caithness is much more likely to be correct than Withering's to Somerset"; but Smith had no knowledge of the matter, and only quoted from Withering. *M. sylvaticum* is, however, included in Top. Bot. (both editions) as a Caithness plant. There is no note of it in Mr. Watson's MSS. in the British Museum, and Messrs. Grant and Bennett have no reference to it, except that already cited: on what authority was the plant enumerated for Caithness in 'Top. Bot.'?—James Britten.

FESTUCA HETEROPHYLLA Lamk. IN OXFORDSHIRE.—A grass which I gathered in company with Mr. Franklin Richards early in May, 1888, Prof. Hackel names as above. The plant was not in flower. It occurred in Chiselhampton Park, where *Lilium Martagon* is quite naturalized.—G. CLARIDGE DRUCE.

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## *NEW PHANEROGAMS PUBLISHED IN PERIODICALS IN BRITAIN DURING* 1888.

(Concluded from p. 122.)

GAILLONIA DUBIA *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 73, t. 30.

GALIUM CYMULOSUM and G. LANUGINOSUM *Post.* Asia Minor. J. L. Soc. xxiv. 432.

HABENARIA AITCHISONII and H. JOSEPHI *Rchb. f.* Afghanistan. Trans. L. Soc. iii. 113, 114.

HAMAMELIS MOLLIS *Oliv.* China. Ic. Pl. 1742.

HEDYOTIS TENUIPES *Hemsl.* China. J. L. Soc. xxiii. 375.

HEDYSARUM MAITLANDIANUM and H. WRIGHTIANUM *Aitch. & Baker.* Afghanistan. Trans. L. Soc. iii. 57.

HELICHRYSUM DEVIUM *J. Y. Johnson.* Madeira. Gard. Chron. iv. 62.

HELIOTROPIUM GYMNOSTOMUM *Hemsl.* Afghanistan. Ic. Pl. 1755.

*HEMIBŒA (Gerneraceæ, Cyrtandreæ) FOLLICULARIS, H. HENRYI, H. SUBCAPITATA, all of *Clarke.* China. Ic. Pl. 1798.

HESPERIS AINTABICA *Post.* Asia Minor. J. L. Soc. xxiv. 420.

HIERACIUM LANGWELLENSE, H. POLLINARIUM, and H. SCOTICUM, *F. J. Hanbury.* Scotland. Journ. Bot. 206.

ILEX MACROCARPA *Oliv.* China. Ic. Pl. 1787.

ILLICIUM VERUM *Hook. f.* China. Bot. Mag. 7005.

IRIS BARNUMI (Armenia) and I. CYPRIANA (Cyprus) *Baker & Foster.* Gard. Chron. iv. 182. — I. DREPANOPHYLLA and I. FOSTERIANA *Aitch. & Baker.* Afghanistan. Trans. L. Soc. iii. 114, 115.

ISATIS BULLATA *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 37.

ISCHÆMUM ANGUSTIFOLIUM *Hackel ined.* [*Oliv.*] India. Ic. Pl. 1773.

ISOPYRUM HENRYI *Oliv.* China. Ic. Pl. 1745.

JOHRENIA PLATYPODA *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 71, t. 29. — J. PORTERI *Post.* Asia Minor. J. L. Soc. xxiv. 431.

JURINEA MONOCEPHALA and J. VARIABILIS *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 80, t. 34.

LACTUCA ELATA and L. TRIFLORA *Hemsl.* China. J. L. Soc. xxiii. 481, 485. — L. LONGIROSTRA *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 82.

LAELIA GOULDIANA, 'n. sp. or n. hyb.?' *Rchb. f.* Gard. Chron. iii. 41.

LASIANTHUS TRICHOPHLEBUS *Hemsl.* China. J. L. Soc. xxiii. 388.

LEONTOPODIUM SINENSE *Hemsl* China. J. L. Soc. xxiii. 424, t. 12.

LEPTODERMIS VESTITA *Hemsl.* China. J. L. Soc. xxiii. 390.

LILIUM HENRYI *Baker.* China. Gard. Chron. iv. 660.

LIMACIA SAGITTATA *Oliv.* China. Ic. Pl. 1749.

Lindera fragrans *Oliv.* China. Ic. Pl. 1788.

Linum rigidissimum *Post.* Asia Minor. J. L. Soc. xxiv. 424.

Liparis Trimenii and L. venosa *Ridl.* India. J. L. Soc. xxiv. 350.

Lonicera Bournei, L. fuchsioides (t. 9), L. gynochlamydea, L. Henryi, L. similis, L. tragophylla, all of *Hemsley.* China. J. L. Soc. xxiii. 360–67.

Lycaste macropogon *Rchb. f.* Costa Rica. Gard. Chron. iii. 200.

Malcomia auranitica and M. zachlensis *Post.* Asia Minor. J. L. Soc. xxiv. 420.

Mappia pittosporoides *Oliv.* China. Ic. Pl. 1768.

Masdevallia punctata *Rolfe.* N. Grenada? Gard. Chron. iv. 323.

Maxillaria Hubschii *Rchb. f.* Gard. Chron. iii. 136.

Medicago Shepardi *Post.* Asia Minor. J. L. Soc. xxiv. 425.

Megaclinium oxyodon *Rchb. f.* Madagascar. Gard. Chron. iv. 91. —M. scaberulum *Rolfe.* S. Africa. Id. iv. 6.

Melodinus coriaceus *Oliv.* Penang. Ic. Pl. 1758.

Mesembryanthemum Brownii *Hook. f.* Bot. Mag. 6985.

Microstylis andicola (Ecuador), M. arachnifera (Mexico), M. bancana (Banca), M. Burbidgei *Rchb. f. MS.* (Labuan), M. caracasana *Kl. ined.* (Columbia), M. crenulata (India), M. gracilis (Guatemala), M. longisepala (Mexico), M. Massonii (W. Indies), M. Moritzii (Venezuela), M. polyphylla (N. Caledonia), M. porphyrea (Arizona), M. rotundata (Guadeloupe), all of *Ridley.* J. L. Soc. xxiv. 320–346.

Musa proboscidea *Oliv.* Trop. Africa. Ic. Pl. 1777.

Myrioneuron Faberii *Hemsl.* China. J. L. Soc. xxiii. 380.

Nepeta Shepardi and N. trachonitica *Post.* Asia Minor. J. L. Soc. xxiv. 439.

Nertera sinensis *Hemsl.* China. J. L. Soc. xxiii. 391, t. 10.

Oberonia Clarkei (Ic. Pl. 1779), O. Falconeri (1780), O. Helferi (1785), O. Treutleri (1786), O. Zeylanica (1782), all of *Hook. f.*, from India.

Oncidium chrysorhapis *Rchb. f.* Brazil. Gard. Chron. iii. 72.—O. detortum *Rchb. f.* Id. iii. 392. — O. chrysops *Rchb. f.* Id. iii. 104.—O. robustissimum *Rchb. f.* Brazil. Id. iv. 352.

Odontoglossum Hrubyanum *Rchb. f.* Peru. Gard. Chron. iv. 234.

Onobrychis caloptera and O. megalobotrys *Aitch. & Baker.* Afghanistan. Trans. L. Soc. iii. 58.

Onosma pyramidalis *Hook. f.* Kumaon. Bot. Mag. 6987.

Panicum supervacuum *Clarke.* Bengal. J. L. Soc. xxiv. 408.

Parnassia Faberi *Oliv.* China. Ic. Pl. 1778.

Passiflora cupiformis *Mast.* (China), and P. perpera *Mast.* (India). Ic. Pl. 1768.

Patrinia angustifolia and P. saniculæfolia *Hemsl.* China. J. L. Soc. xxiii. 396–7.

Phalænopsis Buyssoniana *Rchb. f.* Gard. Chron. iv. 295.—P. denticulata *Rchb. f.* Id. iii. 296.—P. gloriosa *Rchb. f.* Id. iii. 554.

Phormium Hookeri *Gunn MSS.* [*Hook. f.*] N. Zealand. Bot. Mag. 6973.

Pimpinella depauperata *Post.* Asia Minor. J. L. Soc. xxiv. 427.

Pleurothallis punctulata *Rolfe.* N. Grenada. Gard. Chron. iv. 756.

Pluchea? pteropoda *Hemsl.* China. J. L. Soc. xxiii. 422, t. 11.

Ponthieva grandiflora *Ridley*. Ecuador. Gard. Chron. iii. 264.†
Polygonum Gilesii *Hemsl.* Afghanistan. Ic. Pl. 1756.
Polyxena hæmanthoides *Baker*. Cape Colony. Ic. Pl. 1727.
Prenanthes Faberii *Hemsl.* China. J. L. Soc. xxiii. 486.
Primula Faberi *Oliv.* China. Ic. Pl. 1789.
Prunus calycosus *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 61, t. 8.
Ranunculus leptorrhynchus *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 29, t. 1.
*Ranzania (Berberidaceæ) japonica *Ito*. Japan. Journ. Bot. 302.
Rhamnus heterophyllus *Oliv.* China. Ic. Pl. 1759.
Ribes pachysandroides *Oliv.* China. Ic. Pl. 1767.
Rodriguezia Bungerothii *Rchb. f.* Venezuela. Gard. Chron. iii. 264.
Rubus lusitanicus *R. P. Murray*. Portugal. Journ. Bot. 178.
Ruta affinis and R. rotundifolia *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 45, t. 5.
Saccolabium cerinum *Rchb. f.* Sonda. Gard. Chron. iv. 206.
Salvia purpurascens *Post.* Asia Minor. J. L. Soc. xxiv. 438.
Satyrium princeps *Bolus*. S. Africa. Ic. Pl. 1729.
Saussurea decurrens *Hemsl.*, S. Gilesii *Hemsl.*, and S. leptophylla *Hemsl.* Afghanistan. Ic. Pl. 1735, 1736, 1734. — S. lamprocarpa *Hemsl.* and S. microcephala *Franchet*. China. J. L. Soc. xxiii. 465–6.
Scaligeria capillifolia *Post.* Asia Minor. J. L. Soc. xxiv. 428.
Scrophularia gileadense *Post.* Asia Minor. J. L. Soc. xxiv. 438.
Senecio Faberi, S. Henryi, S. Jamesii, all of *Hemsl.* China. J. L. Soc. xxiii. 452–3·
Silene Porteri *Post.* Asia Minor. J. L. Soc. xxiv. 422.
*Sindechites (Apocyneæ, Echitideæ) Henryi *Oliv.* China. Ic. Pl. 1772.
Stachys trinervis *Aitch. & Hemsl.* Afghanistan. Trans. L. Soc. iii. 97, t. 43.
Sticnoneuron membranaceum *Hook. f.* India. Ic. Pl. 1776.
Statice Gilesii *Hemsl.* Afghanistan. Ic. Pl. 1737.
Symplocos Curtisii *Oliv.* Malaya. Ic. Pl. 1757.
Tabebuia longipes *Baker*. Brit. Guiana. Ic. Pl. 1738.
Talisia princeps *Oliv.* Venezuela. Ic. Pl. 1769.
Teucrium auraniticum *Post.* Asia Minor. J. L. Soc. xxiv. 440.
Thalictrum ichangense and T. microcarpum *Lecoyer* [*Oliv.*]. China. Ic. Pl. 1765, 1766.
Thunia candidissima *Rchb. f.* Gard. Chron. iv. 34.
Tillandsia amazonica, J. Bot. 108; Benthamiana, 15; brachycephala, 40; brachyphylla, 16; brassicoides, 12; caracasana, 44; Chagresiana, 109; cryptantha, 142; didisticha, 16; drepanocarpa, 41; elata, 46; gradata, 105; gymnophylla, 41; heterostachys, 166; Kalbreyeri, 45; longibracteata, 81; longicaulis, 80; longipetala, 142; macrochlamys, 142; martinicensis, 45; megastachya, 46; meridionalis, 15; orizabensis, 105; oxysepala, 141; pachychlamys, 48; Parkeri, 42; phyllostachya, 143; platypetala, 47; plumosa, 13; rhodocincta, 143; rigidula, 44;

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† = P. andicola *Rchb. f.* ex *Rchb. f.* in Gard. Chron. iii. 395.

RUBELLA, 44; RUPICOLA, 13; SELLOANA, 104; SINTENSII, 12; SPHÆROCEPHALA, 141; STROBILANTHA, 168; SWARTZII, 12; TRITICEA, 42; TURNERI, 144; TWEEDIANA, 138; all of *Baker*. — T. BAKERIANA and T. CORCOVADENSIS *Britten*. J. Bot. 172.

TRICHODESMA BOISSIERI *Post*. Asia Minor. J. L. Soc. xxiv. 436.

TRIFOLIUM ALSADAMI and T. CANDOLLEI *Post*. Asia Minor. J. L. Soc. xxiv. 425.

TRIGONELLA LAXIFLORA *Aitch. & Baker*. Afghanistan. Trans. L. Soc. iii. 47.

UTRICULARIA BRYOPHILA *Ridl*. West Africa. Ann. Bot. ii. 306, t. 19.

URERA TENAX *N. E. Br*. Natal. Ic. Pl. 1748.

VERBASCUM BARBEYI, V. GILEADENSE, and V. QULEBICUM *Post*. Asia Minor. J. L. Soc. xxiv. 436–7.

VERNONIA ESCULENTA *Hemsl*. China. J. L. Soc. xxiii. 401.

VIBURNUM ARBORESCENS, V. BRACHYBOTRYUM, V. CARLESII, V. HENRYI, V. PROPINQUUM, V. RHYTIDOPHYLLUM, V. UTILE, all of *Hemsley*. China. J. L. Soc. xxiii. 349–56.

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## *NOTICES OF BOOKS.*

*A Monograph of the British Uredineæ and Ustilagineæ*. By C. B. PLOWRIGHT, F.L.S. London: Kegan Paul, Trench & Co. 8vo, pp. vii. 347; 8 plates. Price 10*s*. 6*d*.

IT has been said that "all things come to him who waits," and to a certain extent the aphorism is true; but many of us have become grey-headed in waiting for an English work, by an English author, that would place us on a level with some of our continental neighbours in our knowledge of the plants dealt with in this book. To gather up and classify the biological and morphological facts that have been established by his predecessors, and to add from his own original observations to the general stock, is a task much beyond the mere compiler's power. There are evidences in Mr. Plowright's Monograph that he has accomplished the task in a painstaking and workman-like manner.

The object, he tells us, of the work is to provide the British student, not only with improved specific descriptions of the numerous parasitic fungi, included under *Uredineæ* and *Ustilagineæ*, but also an account of their life-history, as far as hitherto ascertained. With a view of satisfactorily accomplishing this, he has freely availed himself of the works of those biologists who have made these plants a special study. We designedly say biologists, for in no other large group of fungi has the classification been more revolutionised by the biologist than in this. It is no disparagement to the mycologists of the early part of the century that they confined themselves to describing as species different life-forms of the same plant, and only suspected a possible genetic connexion between them; for the time had not arrived for an elaborate and patient investigation of their relationship, only possible with the modern microscope. In distinguishing the numerous forms which came under their observation, and grouping them according to their morphological characters, they were preparing the material for further and higher work. It is somewhat amusing, however, to recall how many of them resented the demolition of their "species," and how reluctantly they received the deductions from "sterilizing," "cultivating," and "infecting." This has passed away, and the biologists are in the ascendant. The most eminent amongst these, especially in relation to the *Uredineæ*, was the late De Bary, whose results Mr. Plowright, in the main, has followed; in the *Ustilagineæ* the work of Von Waldheim, Brefeld, and Schröter has been utilised: but the author has added the results arising out of "between nine hundred and a thousand experimental cultures" of his own.

It is not possible in the space at our command to give an analysis of the contents, but a general notion of the book may be conveyed in a few words. About a third of it is devoted to a clear and precise description of the mycelium of the *Uredineæ;* what is known of the spermogonia, and so-called spermatia, about the function of which latter much doubt still hangs; the æcidiospores; the uredospores; the teleutospores; heterœcism; mycelium of the *Ustilagineæ;* formation and germination of the teleutospores of the last-named; and their infection of the host-plants, concluding with the details of artificial spore-culture, and infection. The classification and description of species occupy 110 pages, and the remainder contains a reprint of the Barberry Law of Massachusetts, a glossary, a list of authors quoted, and a description of the eight excellent lithographic plates with which the volume is illustrated.

While we speak highly of the author's share in this book, and strongly commend it to the student of mycology as a most useful monograph, we must not omit to express our praise of the manner in which the publishers have done their work. A clear type, good paper, and admirably executed plates, which do full justice to the drawings of the author, add greatly to its value; but as every critic must have a fling at something, we conclude with an unqualified condemnation of the binding, which, though remarkable, is neither ornamental nor useful. WILLIAM PHILLIPS.

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NEW BOOKS.—C. HOWIE, 'The Moss Flora of Fife and Kinross' (Cupar: 8vo, pp. 116: 3*s*.).—F. G. STABLER & C. SCHRÖTER (transl. by A. N. MCALPINE), 'The Best Forage Plants fully described and figured' (London, Nutt: fol., p. vi. 171, tt. 30: 12*s*. 6*d*.).—W. H. PURCHAS & A. LEY, 'A Flora of Herefordshire' (Hereford, Jackman: 8vo, pp. xi. xxxvii. 549: maps, 3 plates). — J. WIESNER, 'Biologie der Pflanzen' (Wien, Hölder: 8vo, pp. ix. 303: 60 cuts). — C. FRAENKEL & R. PFEIFFER, 'Mikrophotographischer Atlas der Bakterienkunde' (pts. 1 & 2: Berlin, Hirschwald: 8vo, pp. 48, tt. 12).

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## ARTICLES IN JOURNALS.

*Bot. Centralblatt* (No. 13).—C. Lauterbach, 'Ueber Bau und Entwicklung der Sekret-behälter bei den Cacteen.' — (Nos. 14 and 15). E. Dennert, 'Anatomie und Chemie des Blumenblatts.'—(No. 14). G. Tiselius, '*Potamogeton fluitans*' Roth.—(No. 15). A. Arrhenius, '*Polygonum Rayi* f. *borealis* Arrh.'

*Botanical Gazette* (March). — M. J. Bebb, 'N. American Willows' (1 plate).—J. W. Moll, 'Intracellular Pangenesis.' — W. J. Windle, 'Fibres and raphids in fruit of *Monstera*' (1 plate). —B. D. Halsted, 'Our worst Weeds.' — H. W. Wiley, 'Sweet Cassava.' — S. Coulter, 'Histology of leaf of *Taxodium* (1 plate). —J. M. Coulter, 'Continuity of Protoplasm.'—D. H. Campbell, '*Monotropa uniflora* as a subject for demonstrating the embryo-sac.'

*Botaniska Notiser* (No. 2).—A. N. Lundström, 'Om regnuppfångande växter.' — S. Berggren, 'Några iakttagelser rörande sporernas spridning hos *Archidium phascoides*.'—B. Jönsson, 'Jakttagelser ofver fruktens sätt att öppna sig hos *Nuphar luteum* och *Nymphæa alba*.' — C. Kaurin, '*Bryum Blyttii* n. sp. & *Pseudoleskea tectorum* fructificans.' — S. Almquist, 'Om gruppen Ligulatæ Fr. af sl. Potamogeton'; 'Om gruppindelning och hybrider inom slägtet *Potamogeton'*; and 'Om en egendomlig form af *P. filiformis*.'

*Bot. Zeitung* (Mar. 29).—E. Ihne, 'Ueber die Schwankungen der Aufblühzeit.'—(No. 5). J. Wortmann, 'Beiträge zur Physiologie des Wachsthums.'

*Bulletin Torrey Bot. Club* (March).—N. L. Britton, 'Plants collected by Rusby in S. America' (*Freziera inæquilatera*, *Saurauja Rusbyi*, *Malvastrum Rusbyi*, spp. nn.).—C. F. Millspaugh, 'Euphorbiaceæ Mexicanæ' (*Euphorbia Montereyana* sp. n.). — T. C. Porter, '*Aster lævigatus* and two new varieties.'—T. Meehan, 'Elastic Stamens in Compositæ.'—C. H. Keim and E. A. Schultze, 'A fossil marine Diatomaceous Deposit from Atlantic City, N. J. (1 plate).—E. E. Sterns, 'The Ideal Ovary.'

*Gardeners' Chronicle* (Mar. 30).—*Catasetum Darwinianum* Rolfe, n. sp.—(Ap. 13). *Galanthus Fosteri* Baker, n. sp.—N. E. Brown, 'Sexuality in *Catasetum*' (fig. 83).—H. M. Ward, 'Chlorosis.'

*Journal de Botanique* (. Mar. 1).—Drake del Castillo, 'Contribution à la Flore de l'Amérique equatoriale' (*Macleania Poortmanni*, *Orthæa abbreviata*, *Cerastostemma Andreanum*, *Vaccinium escallonioides*, *Befaria decora*, spp. nn.)—E. Mer, 'De l'accroissement de l'écorce des sapins.'—P. Vuillemin, 'Sur les affinités des Frankéniées.'—(Mar. 16). E. G. Camus, 'Des Orchidées des environs de Paris' (*O. Luizetiana*, n. hybr.: 1 plate).—Masclef, 'La Géographie Botanique du Nord de la France.'—(Ap. 1). A. Franchet, '*Nomocharis* nouveau genre de Liliacées Tulipies' (1 plate). — H. Douliot, 'Influence de la lumière sur le developpement du liège.'

*Œsterr. Bot. Zeitschrift* (April).—P. Ascherson, 'Zur Synonymie der *Eurotia ceratoides*.'— J. Freyn, 'Ueber einige kritische *Arabis*-Arten.'—J. Breyn, 'Zur Moosflora des Kaukasus.'—L. Simonkai, '*Alchemilla pilosissima* und *Verbascum grandicalyx*.' — V. v. Borbás, 'Ueber den Formenkreis der *Cortusa Matthioli*.'

*Scottish Naturalist* (April).—J. Stevenson and J. W. H. Trail, 'Fungi of Inverary.'—J. F. Grant and Arthur Bennett, 'Contributions towards a Flora of Caithness.'

## LINNEAN SOCIETY OF LONDON.

*March* 21, 1889. — Mr. Carruthers, F.R.S., President, in the chair. — Messrs. H. B. Hewetson, W. Narramore, W. T. Rabbits, and M. B. Slater were elected Fellows. — Mr. W. B. Hemsley furnished a Report on the Botanical Collections made on Christmas Island during the Voyage of the 'Egeria.' This included a complete list of the plants collected, with remarks on their general distribution, the author being of opinion that the flora of this island, which lies about 200 miles south of the western end of Java, was more nearly related to that of the Malayan Archipelago than to that of Australia. Mr. C. B. Clarke, commenting on the author's observations on the buttresses of trees, described some remarkable instances which he had seen of this singular mode of growth. Mr. J. G. Baker, referring to the ferns which had been collected, noticed their affinities and distribution. Mr. R. A. Rolfe commented on three species of orchids which had been brought home by this expedition, all of which were new. Mr. Thiselton Dyer, referring to Mr. Lister's Report to the British Association on the zoological collections from this island, in which it was stated that the character of the avifauna was Australian, considered that it was not borne out by an examination of the flora, which was decidedly Malayan.— A paper was then read by Mr. R. A. Rolfe, 'On the Sexual Forms of *Catasetum*, with special reference to the researches of Darwin and others.' The purport of Darwin's paper (Journ. Linn. Soc. 1862) was to show that *Catasetum tridentatum* had been seen by Schomburgk to produce three different kinds of flowers, belonging to the same number of supposed genera all on the same plant, and that the three represented respectively the male, female, and hermaphrodite states of the species. Mr. Rolfe showed that Schomburgk's remarks applied to two distinct species, *C. tridentatum* and *C. barbatum*, the females of which resembled each other so closely that they were thought to be one and the same, namely, *Monacanthus viridis*. Neither of these, however, belonged to the true plant of that name, which was really the female of another species, viz., *C. cernuum*—a fact hitherto unsuspected. The key of the situation was that the females of several species resembled each other very closely, and to three of them the name *Monacanthus viridis* had been applied. —A paper by Mr. MacOwan, 'On some new Cape Plants.' was read.

*April* 4. — Mr. Carruthers, F.R.S., President, in the chair.— Mr. A. C. Lowe was admitted a Fellow of the Society, and Messrs. T. W. Cowan and Rupert Valentin were elected. — Mr. D. Morris exhibited a specimen of the hymenopterous insect, *Eulæna cayenensis*, concerned in the fertilization of *Coryanthes macrantha* (see Crüger, Journ. Linn. Soc. viii. 129), and obtained from Mr. Hart, of Trinidad. Referring to the illustrations of the structure of the flowers given in the 'Gardeners' Chronicle' (xvii. 1882, 593, and xxiii, 1885, 145). Mr. Morris explained the process carried out by the insects, chiefly bees, in removing the pollinia, and subsequently attaching them on the stigma. The observations of Crüger had been verified by Mr. Hart in the Botanic Gardens, Trinidad. — Sir Edward Fry exhibited and made some instructive remarks on a copy of Grisley's 'Viridarium Lusitanicum,' 1661, presented by Linnæus to his pupil Loefling, the author of the 'Iter Hispanicum.' —A paper was read by Mr. Lister, 'On the Myxomycetes, or Mycetozoa, a group of organisms on the borderland between the Animal and Vegetable Kingdoms, and formerly classed with Fungi.' His remarks were illustrated by numerous coloured drawings of representative species, and the author exhibited under the microscope the swarm-cells from the spores of *Amaurochæte* and the streaming plasmodium of *Badhamia.* Attention was specially directed to the mode of feeding of the swarm-cells, and observations made on those of *Stemonitis,* where large bacilli were seen to be caught by pseudopodia projected from the posterior end of the organism, and drawn into its substance and digested. An interesting discussion followed, in which the President, Prof. Marshall Ward, Prof. Howes, and Mr. Breese took part.

## *OBITUARY.*

Mary Philadelphia Merrifield, who died at Stapleford, Cambridge on January 4th, and was buried in Stapleford Churchyard, was a very accomplished phycologist, whose name will rank beside those of Mrs. Griffiths, Miss Cutler, Miss Gifford, and Mrs. Gray, as an industrious explorer of our marine Algæ. She was born in Brompton Road, London, on April 15th, 1804, and was the daughter of Mr. Charles Watkins, an eminent conveyancing barrister. Her husband, John Merrifield, whom she married on January 1st, 1827 (and who died in 1877), was also a barrister. She was the author of a 'List of Marine Algæ found at Brighton and its vicinity, with observations on a few of the most remarkable plants,' which appeared in the 'Phytologist' (vi. 1862–63, pp. 513–523). Her other writings are notices contributed to the pages of this Journal, with others in 'Nature' and elsewhere, usually signed by her initials. As a correspondent Mrs. Merrifield rendered valuable services to a number of phycologists, notably to the late Prof. Dickie and to Prof. Agardh. Prof. Agardh has recognised her abilities as a phycologist by establishing in her honour the genus *Merrifieldia* (Till. Alg. Syst. vii. Florideæ, p. 55), founded on the *Chondria ? ramentacea* C. Ag. Sp. 354, *Hypnea ramentacea* J. Ag. Epicr. p. 561. Though in her eighty-fifth year, she recently contributed a paper to 'Nature,' which appeared in the same number as the announcement of her lamented death.

The Rev. W. H. Painter announces that his 'Flora of Derbyshire' will shortly be published. It will contain about 128 pages octavo, and is "intended to serve as a companion volume to 'Cybele Britannica,' the 'Compendium' to the same, and the other books of the late Mr. H. C. Watson, as well as to the 'Flora of the Lake District,' &c., written by Mr. J. G. Baker." The price to subscribers will be 5*s.* 6*d.*: names should be sent at once to the author, Knypersley, Congleton.

# ADDITIONS TO THE FLORA OF CEYLON, 1885-88.

By Henry Trimen, M.B., F.R.S.

The notes which I published in the volume of this Journal for 1885 brought up our knowledge of the constituents of the Ceylon flora to the end of 1884. During the four years which have since elapsed, a good many additional species have been discovered either by myself, by my deceased friend Mr. W. Ferguson, or by Mr. H. Nevill. These are enumerated in the following pages, and those of them which I believe to be new to science are named and described. I have to acknowledge aid received from the officers of the herbaria at Kew and the British Museum, and, in the Grasses, from M. Hackel, of St. Pölten, Austria.

*Cleome Chelidonii* L. f. Scattered rather sparingly about the borders of Mineri Tank, or rather Lake, Sept. 1885, and conspicuous from its large pink flowers. Known from several parts of India (where Koenig first collected it near Tanjore), and from Java.

*Calophyllum pulcherrimum* Wall.? Several small trees by the sides of a rocky stream in Mandagala Forest, near Hewesse, Pasdun Korale, March, 1887, in full flower. Their extremely bright yellow very smooth bark gave them a remarkable appearance. From *C. Burmanni*, which this a good deal resembles, it differs in the bark just mentioned, in the smaller flowers on much more slender peduncles, and in the smaller and narrower leaves and quite glabrous young shoots. The habitat is also quite unlike that affected by *C. Burmanni*, which is a tree of dry sandy places near the sea-coast, and not a forest species. I cannot feel sure as to the name of this tree. *C. gracile* and *C. bancanum* of Miquel are referred to *C. pulcherrimum* in Fl. Brit. Ind. i. 271–2, and the range of distribution is there given as Singapore, Malacca, Sumatra, Banca. *C. Teijsmanni* Zoll. also seems to be very close. There is a plate of *C. pulcherrimum* in Pierre's 'Flore Forestière de la Cochin-Chine,' t. 104.

*Vatica obscura* Trim. When describing this in 1885 (Journ. Bot. xxiii. 203), I had not seen the fruit. This has since been supplied to me by Capt. Walker, and I am thus able to complete the description of the species:—Fruit ovate-ovoid, about 1 in. long, and nearly as wide at base, blunt-pointed; persistent sepals all enlarged, about ⅜ in. long, rigid, deflexed at the base, but afterwards erect-spreading, with the points in contact with the base of the fruit; pericarp smooth but not shining, dull chocolate-brown, rather thin, leathery-brittle, the sutures faintly marked, tardily 3-valved. Seed with equal plano-convex cotyledons, furrowed on outer surface, and a blunt radicle. The fruit is ripe in October. It is extremely like those of some species of *Stemonoporus*, but the latter have the sepals entirely reflexed.

**Balanocarpus zeylanicus**, n. sp. I have succeeded in obtaining the fruit of the plant from Doluwe Kande, described in my former paper (*l. c.* 205) under Thwaites' MS. name of *Shorea* *brevipetiolaris.* This shows that it does not belong to *Shorea*, and it may be described as follows:—Fruit $\frac{3}{8}$ to nearly $\frac{1}{2}$ in. long, acute and strongly apiculate, surrounded at the base by a shallow somewhat spreading cup formed by the hard broad obtuse much imbricated enlarged sepals, about $\frac{1}{6}$ in. long, 3 broader than the other two; pericarp thinly chartaceous, brittle, smooth, brownish; seed green, the cotyledons very unequal, the larger unequally 3-lobed. I place it, with some little doubt, in Beddome's genus *Balanocarpus*, founded ('Forester's Manual,' p. 236) on two species from the Tinnevelly Hills, in S. India, both of which are figured in his Fl. Sylvat. tt. 329, 330. Our species is quite distinct from these, and as the sepals are not found to form "a hard woody 5-lobed cup," as described, it may be doubted if it should find a place in the genus. The calyx, indeed, agrees better with that of *Isoptera* Scheff. (see Burck, Ann. Jard. Buit. vi. 222, and t. 25), but that has 30–36 stamens, and other characters which will not agree with the Ceylon plant.

*Limonia crenulata* Roxb. (*L. acidissima* Auct. plur. non L.). I found small trees of this in many places about Bibile, Ekiriankumbura, &c., in the Province of Uva, in Jan. 1888, with unripe fruit. I have already pointed out (Journ. Linn. Soc. xxiv. 142) that Linnæus' name *L. acidissima* cannot be maintained for this, as Hermann's specimens, on which it was mainly based (Fl. Zeyl. n. 175), are *Feronia Elephantum*, though no doubt Linnæus afterwards confused the two plants (which have much similarity in their leaves) by quoting also Rheede, Hort. Malab. iv. t. 14, which represents the *Limonia*. *L. crenulata* is probably confined in Ceylon to the peculiar and little-known country where I collected it; in the drier parts of Peninsular India it has a wide range, but does not appear to be anywhere very common.

*Suriana maritima* L. This almost universally distributed seashore tropical shrub had never been observed in Ceylon (though recorded from the Nicobar and Laccadive Islands, and perhaps also the Maldives) until the late W. Ferguson, in December, 1885, found it at Foul Point, Trincomalie, whence he sent me specimens. It is easily overlooked as *Pemphis*, save when in blossom, when its bright yellow flowers are conspicuous enough. The five barren stamens are often quite absent.

*Crotalaria tecta* Heyne (in Roth). A weed in dry paddy-fields about Mineri, N. Central Prov., Sept. 1885. A coarse semi-shrubby plant found also in several parts of Southern India. Seems little more than a suffruticose form of *C. linifolia*.

**Eugenia** (Eu-eugenia) **pedunculata**, n. sp. A shrub, perfectly glabrous throughout, with numerous straight, twiggy branches. Leaves coriaceous, stiff, $1\frac{1}{2}$–$2\frac{1}{2}$ in. long, broadly oval, tapering into short petioles at base, very bluntly acuminate, pale beneath, pinkish when young; flowers $\frac{3}{4}$ in. or more in diameter, on long straight peduncles varying from $\frac{3}{4}$ to $2\frac{1}{2}$ in., usually solitary, but sometimes in (apparent) clusters of three to five, from the lower nodes of the new shoots below the young leaves; calyx-tube with one or two small acute bracts beneath, pyriform; lobes 4, ovate, obtuse, finely ciliate, reflexed in flower; petals large, white, spreading or reflexed; fruit not seen.—On the summit of the Rangala Range, at about 5000 ft., September, 1888. The nearest Ceylon ally to this is *E. Mooniana* Wight, a very variable and common species. From this the present species differs in its very much larger flowers on long stiff peduncles, its larger and broader leaves, and different habit. This group of *Eugenia* is well represented on the hill-tops of the north-eastern block of our mountain system, but they are difficult to discriminate. Besides *E. phillyrœoides*, described in my last paper, I have a very distinct species in young fruit from Kalupahane Valley, Lagalla, which is allied to *E. Jossinia* Duth. (*Jossinia indica* Wight), but as it is in young fruit only, I hesitate to give it a name. The plant called by me var. *rotundata* of *E. amœna* Thw. (Cat. Ceyl. Pl. p. 33) is probably also a good species, and is common in the same localities; it is the *E. Mooniana* var. *β* of Thw. Enum. p. 114. Besides these, I have yet another species of the same group from Rangala, but must wait for more material before publishing it.

*Sonneratia apetala* Ham. Numerous trees of this were noticed in Aug. 1885, in the tidal water at Koddiar, Trincomalie, where one of the branches of the Mahaweli River enters the harbour. They grow here with other "Mangroves," but form tall, slender trees, with the habit of some of the Australian phyllodineous Acacias, and possess erect root-processes similar to those of *S. acida.* They were covered with the small depressed-globular apiculate fruit. This species occurs abundantly in the Soonderbun, below Calcutta, and at Moulmein, but does not seem at all a general constituent of the Mangrove swamps of the East.

*Gardenia turgida* Roxb. Rocky ground at Nilgala, Prov. of Uva, Jan. 1888, in nearly ripe fruit. The people called it "Pita-madu," and said the flowers were white. The fruits are nearly spherical, $1\frac{1}{2}$–$1\frac{3}{4}$ in. in diameter, not beaked, smooth, but covered with small warty excrescences; the exocarp is very thick, the endocarp woody, and there are five placentas. This is quite distinct from the two other Ceylon species, which are closely allied to one another, and have each three placentas in the fruit. As there seems some confusion as to their names, both being placed as "doubtful species" at the end of the genus in Fl. Brit. Ind., a few words on their characters may be here given. The commoner one, called "Galis" by the Singhalese, is found in the moist region, and forms a small spreading tree, with showy flowers, white when first expanded, but passing during the day through lemon-yellow to orange. This is C. P. 3617, and is given as *G. latifolia* Ait. by Thwaites. The calyx is very variable; usually the limb is strongly winged, and has long acute folded recurved teeth; but sometimes the mouth is truncate, or nearly so, and the wings are absent; the corolla-tube is 2–3 in. long, and the limb 8–9-lobed; the fruit is smooth, *not costate*, and with three (very rarely four) placentas. Roxburgh's plate (Cor. Pl. t. 134) may be this, but it shows no calyx-tube on the fruit, nor is the placentation given. Our other species is a bush, growing on arid rocks in our dry districts, and is C. P. 3618. It is referred by Thwaites to *G. carinata* Wall., with which, however, it does not completely agree, and Hooker suggests that it may be a form of *G. coronaria* Ham. The calyx-limb is angled, and truncate at the mouth; the corolla-tube 3–4 in. long, and the limb 7-lobed; and the fruit *distinctly 6-ribbed*, with three placentas.

*Glossogyne pinnatifida* DC. On rocky ground in several places about Nilgala and Ekiriankumbura, in January, 1888, mostly past flowering. An easily overlooked plant, which probably occurs elsewhere in the dry region. It is found in many parts of Peninsular India. There is no published figure of this little Composite.

*Holostemma Rheedii* Wall. It is remarkable that this beautiful and conspicuous Asclepiad should have remained undiscovered till now, and that it has been overlooked shows how slightly the more remote districts of Ceylon have been botanically examined. I found it frequent, climbing over bushes in the neighbourhood of Nilgala, Bibile, &c., in Jan. 1888, and have introduced it to the Botanic Gardens at Peradeniya. The species seems to have a wide range in Peninsular India, and is also found in Burma.

*Ceropegia Decaisneana* Wight. I collected this in Sept. 1888, in the forest-covered mountains of Rangala district, at about 4000 ft. It has by far the largest flowers of any species in Ceylon. Wight found this near Sispara, Nilgiris, and it is figured in his Icones, t. 1259.

**Ceropegia parviflora**, n. sp. Whole plant glabrous and pale yellowish-green; leaves ovate, the lower ones broadly so, rounded at base, the lower ones subcordate, tapering and very acute at apex, thin; flowers small, in few-flowered umbels; calyx-lobes linear-setaceous, glabrous; corolla $\frac{5}{8}$ in. long, all pale yellow; tube moderately inflated in lower part, nearly straight above, and not dilated at mouth; lobes very short, about one-sixth the length of tube, oblong-lanceolate, not produced into tails, united at the tips to form a short blunt cone; coronal lobes linear, ciliate at base; processes long, spathulate, glabrous; follicles 5–6 in. long, linear.—Climbing over bushes at Anuradhapura, N. Cent. Province, Feb. 1888. This species is allied to *C. intermedia* Wight (which is almost certainly *C. biflora* L.), but differs conspicuously in its very small yellow flowers, with very short tailless lobes, and linear coronal lobes, as well as in its broader leaves. The small flowers suggest *C. bulbosa*, which is, however, abundantly distinct in other respects.

*Wrightia flavido-rosea* Trim. I am now able to add to my description of this (Journ. Bot. 1885, 238) the characters of the fruit, obtained from the same trees in Sept. 1888, very nearly mature:—Follicles connate into a single fruit, 8 or 9 in. long, stout, near $\frac{1}{2}$ in. diameter, cylindrical, sharply pointed, glabrous, dark green (black when dry); seeds very numerous, with a very long coma. The connate stout follicles completely separate this species from *W. tinctoria* Br., and connect it with *W. tomentosa* R. & S. As in that species, the follicles separate when ripe, and remain attached to one another for a while by their points only.

*Exacum petiolare* Griseb. This rather ill-defined species was recorded for Ceylon by C. B. Clarke (Journ. Linn. Soc. xiv. 427) on the faith of specimens of C. P. 1876 sent by Thwaites, under the name *E. pedunculatum*, to T. Thomson and Kurz. All the specimens of that number, however, in the Peradeniya Herbarium, as well as at Kew and the British Museum, are as named by Thwaites, *E. pedunculatum*, but it is of course possible that he may have found *E. petiolare*, and included it under the same number. But we had no Ceylon specimens of the latter here until Jan. 1886, when the late W. Ferguson sent fresh specimens collected at the hot wells of Kannia, near Trincomalie. These appear to agree completely with the characters given for that species. The flowers are a bright light blue. In Continental India it is recorded from Concan and Chota Nagpore only.

*Cordia subcordata* Lam. This is another of the late W. Ferguson's discoveries at Trincomalie. Like *Suriana*, with which it was found in Dec. 1885, at Foul Point, it is one of those widely-spread plants of tropical shores and islands which are transported by ocean-currents, and both have probably only recently effected a lodgment in Ceylon. It is a small, handsome tree, and is well figured in Seemann's Fl. Viti. t. 34.

*Thunbergia fragrans* Roxb., var. PARVIFLORA Trim. MS. Quite glabrous; leaves very acuminate, deeply cut hastately at base; corolla less than 1 in. in diameter. — Summit of Ritigala, N. Cent. Province, 2500 ft., July, 1887. At first sight this is so unlike the type that I thought I had to deal with a new species; but the characters when defined are insignificant, and *T. fragrans* is a very variable plant. The type is common here at all elevations, and it is remarkable that, in spite of its name (said to be warranted in Bengal), the flowers are always absolutely scentless.

*Andrographis paniculata* Nees, var. GLANDULOSA Trim. MS. Whole plant glandular-pubescent, angles of stem and upper surface of leaves finely hispid, inflorescence less branched, and flowers larger than in the type.—On the edge of forest in Maturata district, March, 1885, at an elevation of fully 5000 ft., which is much higher than the type is ever found. A very well-marked variety; the glandulosity is densest on the inflorescence, and extends to the outside of the corolla and capsules.

**Coleus elongatus**, n. sp. Stems straggling over rocks, 2–3 ft. long, stout and rather succulent, slightly thickened at the nodes, tetragonous, not winged, finely densely puberulous, with long spreading divaricate branches; leaves small, 1–1¾ in. long, on rather long petioles, ovate-triangular, somewhat truncate at base, sub-acuminate, coarsely crenate-serrate, very finely puberulous, thin, pale green, veins prominent beneath; flowers very small, shortly pedicellate, closely arranged and secund in short (1–1½ in.), slender, opposite, distant, divaricate, stalked racemes from the axils of the fallen leaves; bracts inconspicuous, about as long as the pedicels; calyx very much curved upwards, obscurely 2-lipped, with the teeth of the lower lip longer and acuminate, hispid with short crisp hairs externally, glabrous within; corolla ⅜ in. long, pale bright purple, hairy with short stiff hairs externally, glabrous within; tube nearly straight, dilated upwards, and gibbous at the base; upper lip 4-fid, reflexed, the two middle lobes the largest; lower lip entire, strongly curved upwards, as long as the tube; stamens inserted at mouth of corolla-tube; filaments distinctly connected at the base, glabrous; anthers roundish, the cells not confluent; nuts not seen.—I gathered this in July, 1887, near the summit of Ritigala, an isolated hill (2500 ft. high) in the N. Cent. Province. The regular simple secund racemes, placed in pairs at long intervals on the bare stems (for the leaves quickly fall), give the plant a very characteristic facies; the leaves are slightly scented, and very bitter in taste. The plant has been introduced to Peradeniya Gardens. This is not very near any of our recorded species, *C. parviflorus* Benth. (*Plectranthus tuberosus* Bl.) being the nearest, but at a great distance off. This latter is the "Innala" of Ceylon, and is much cultivated for its edible tubers.

*Achyranthes aquatica* Br. Sides of a tank at Madatugama, near Kekirawa, N. Cent. Prov., July, 1887. A coarse semi-aquatic plant found also in several parts of India, and in Tropical Africa. It is very much larger than the other species of the genus.

**Loranthus mabæoides**, n. sp. Much branched, twiggy, the twigs nodulose lenticillate; leaves numerous, alternate, small, ¾–1 in. long, shortly stalked, ovate, rounded at the base, obtuse at the apex, stiff; veins, except midrib beneath, inconspicuous, glabrous, scurfy-pubescent when very young; flowers very small, sessile, in axillary clusters of two to four; buds slightly club-shaped; bract cup-shaped, entire, faintly ciliate, finely pubescent, covering about half the calyx; calyx-tube finely pubescent, limb cup-shaped, entire, faintly 4-lobed; petals 4, equal, free, less than ¼ in. long, straight, obtuse; anthers short-oblong, basifixed; style as long as petals; stigma capitate; fruit not seen.—Found in the Kalupahane Valley, Lagalla, East Matale, Sept. 1887. This species, remarkable for its small flowers and foliage, belongs to Korthals' section *Baratranthus*, and, of the Ceylon species, comes nearest to *L. nodiflorus* Thw. That, however, differs by its large leaves, 3 or 4 in. long, and attenuate at the apex, and by its larger flowers, very much more numerous in a cluster, and with the upper half of the petals reflexed. From the same locality I have another undescribed species of *Loranthus*, closely allied to *L. sclerophyllus* Thw., from which it differs in having the leaves larger and less tapering at the base, and much thicker, so as to become finely wrinkled all over from shrinkage when dry. Unfortunately this is only in very young fruit, and I am unable to describe it sufficiently to warrant a specific name.

*Viscum ramosissimum* Wall. I gathered this off large trees of *Rhododendron arboreum* in the Maturata Hills, in March, 1885. It is also found in South India and, doubtfully, at Singapore. Wight's figure (Ic. t. 1017) has more flowers at the nodes, and is referred by Hooker to *V. angulatum* Heyne, a very closely-allied species. My locality has been already published in Fl. Brit. Ind. v. 225.

*Halophila Beccarii* Asch. For specimens of this little marine phanerogam I am indebted to Mr. H. Nevill, C.C.S., who collected it in a lagoon of brackish water, ten miles south of Batticaloa, in

June, 1885. Dr. Ascherson has verified my determination of the species, which has also been met with on the Borneo and Arracan coasts, and is probably to be found elsewhere on the sea-shores of the Eastern Tropics. Mr. Nevill has himself published some remarks on this and on the forms of *H. ovalis* in Ceylon in his periodical, the 'Taprobanian,' ii. 67, for 1887. It is very desirable to obtain flowers and fruit of this little plant; the structure of its leaves is so different from that of *H. ovalis* that it is not improbable it may belong to a different genus. It is omitted from its place in Fl. Brit. India, v. 664, though I sent specimens to Kew on its discovery.

*Liparis Trimenii* Ridl. in Journ. Linn. Soc. xxiv. 350 (1888). This was collected at Horagala, Dolosbagie, in Sept. 1885, and is fully described in Mr. Ridley's Monograph in the Linnean Society's Journal, as above quoted.

*Crinum latifolium* L. I refer to this species a fine *Crinum* I found between Anuradhapura and Mihintale in Aug. 1885. It agrees well with Wight, Ic. t. 2019–20, though not with Bot. Reg. t. 1297, which can scarcely be the same species. The large flowers were 4 to 8, usually 5, in an umbel, and the perianth-segments considerably broader than in the forms of *C. zeylanicum* L. met with wild in Ceylon. I have another species of *Crinum* (*Codonocrinum*) with few small flowers, sent me by Mr. Nevill, and collected on the sandy coast at Puttalam, but my material is insufficient to determine its name with any certainty.

*Urginea congesta* Wight, var. RUPICOLA Trim. MS. Flowers fewer and more laxly arranged, and perianth-leaves broader and more obtuse than in the Indian plant.—Abundant in flower and young fruit in the chinks of arid flat rocks at Dambulla, on the lower part of the ascent to the temples, July, 1887. I am unable to distinguish this as a species from Wight's plant (Ic. t. 2064, fig. sinistra), but Mr. Baker, to whom I submitted specimens, was inclined to consider it as distinct, and nearer to *U. fugax* Steinh., a Mediterranean species. My material is bad; the intense heat and drought had withered-off the leaves, which seem to be two only, narrow, folded, and channelled, and to appear along with the flower-scapes. The perianth is white, with the midrib purplish brown.

*Typhonium cuspidatum* Dcne. Discovered by the late W. Ferguson in July, 1886, by the side of the lake at Colombo, no doubt previously passed over as the common *T. divaricatum*, from which it is easily known by the possession of staminodes, thus coming under Schott's genus *Heterostalis*. It has been found in India, Malacca, Java, and Timor, and is figured in Wight, Ic. t. 791. It is better known under the name *T. flagelliforme* Bl. (*Arum* Lodd.).

*Naias major* All. (*N. muricata* Del.). On hard mud in 2 ft. of water in a lagoon near Kalmunai, May 1885, sent by Mr. H. Nevill. This aquatic has a very wide range over the Northern Hemisphere, chiefly in the extra-tropical parts, but it is also found in Queensland. I have not met with any record of its occurrence in India, though it doubtless grows there. It is very variable as to the amount of armature of the stem and leaves; the Ceylon plant has the spines numerous and large, and belongs to the form called *N. muricata* Del., originally described from Egypt, and often maintained as a species, as by Braun in his revision of the genus (Journ. Bot. 1864, 274). *N. graminea* Del. is a common plant in the fresh or slightly brackish shallow backwaters so frequent on both the E. and W. coasts of Ceylon, and also inland; and is C. P. 3887. I have also specimens of a much larger species, probably *N. indica* Cham. (*N. minor* All., var. *indica* A. Br.), which I collected in the Southern Province in 1881, but I cannot be certain of this identification. This species is given for Ceylon in Moon's Catalogue, p. 61 (*Caulinia indica* Willd.), but not since recorded.

*Isachne minutula* Kunth (*Panicum* Gaudich.). The late Mr. W. Ferguson during the last few years of his life devoted much of his time to the collection of grasses, and among his specimens I have detected several interesting additions to our flora. The present little species was obtained by him in swampy land at Udugama, Southern Prov., in Oct. 1886; it is nearly allied to the smaller forms of *I. australis* Br., but can be distinguished by the smaller spikelets all on very slender pedicels, the hairy leaves, and the diffuse creeping habit. Our plant differs from the type—which is recorded only from the Marianne Islands and Guinea—in having the two lowest glumes provided with long weak hairs.

*Oplismenus Burmanni* Beauv. (*Panicum* Retz.). In my recent 'Catalogue of Ceylon Plants' (p. 105) I prefixed a query to this species, as the plant so called by Thwaites (Enum. 358), C. P. 3683, is nothing more than long-awned *O. compositus* Beauv. In Jan. 1886, however, Mr. W. Ferguson sent me from Trincomalie specimens of the true *O. Burmanni* figured by Burman (Fl. Ind. t. xii. f. 1) and described by Retzius (Obs. iii. 10), and readily distinguishable from all forms of the very variable *O. compositus* by the much shorter branches of the panicle, with smaller and much more closely placed spikelets, and by its more lax and slender habit. Its range appears to be much more restricted than that of the latter, but is scarcely ascertained with accuracy.

*Oryza granulata* Nees & Arn. in Wight, Lith. Cat. 142, n. 2354, and Steud. Syn. Gram. 3 (name only). Perennial, with a tufted rootstock, glabrous throughout, bright pale green; culms 1–2 ft. high, very strongly compressed and often ancipitous in the lower part; leaf-blade rather short and broad, abruptly narrowed at the base into a short broad petiole, rather stiff, very finely rough on both surfaces; midrib very prominent beneath, always excentric; sheaths quite smooth, save a tuft of short bristles on either side at the mouth; ligule very short; inflorescence very short, erect, stiff, spicate-racemose, with very few spikelets; spikelets small, $\frac{1}{8}$ in. long, the two lowest glumes minute thorn-like at the base of the spikelet, the 3rd and 4th very hard, stiff, and horny, equal, blunt, quite without awns, *their whole surface copiously and irregularly covered with rather coarse rough granulations or tubercles,* glabrous. Collected in Nov. 1886, in dense virgin forest on the rocky ridge at the summit of Wattahapat Kande, two miles from Rambukkana, Kegalla District, Western Province, by the late W. Ferguson. There are also specimens in the Peradeniya Herbarium collected by Moon, and labelled "Kandy, April, 1821." The granulations of the glabrous glumes and the characters of the leaves seem to afford good specific characters for this plant, and to mark it clearly off from all the varieties of "Wild Paddy," though in other respects the form about to be noticed approaches it so closely as to have been completely mixed up with it by Ferguson in his collection. I am indebted to Prof. Oliver for comparison of this Ceylon plant with Wight's n. 2354, which I suspected to be the same. I believe no description of the species has been previously published. It is Wallich n. 8634 c, from Nepal, and there are specimens of it in Hk. f. & Thoms. Herb. Ind. Or., from Sikkim.

*O. sativa* L., var. COLLINA Trim. MS. Apparently often perennial; culms 2–3 ft. high, strongly compressed; leaf-blades long, gradually narrowed to the base, without any obvious petiole; ligule short, about $\frac{1}{8}$ in. long; inflorescence erect, paniculate; spikelets small; 3rd and 4th glumes minutely and regularly tesselated and finely bristly, the 3rd with a white awn varying in length from $\frac{1}{4}$ to $1\frac{1}{2}$ the length of the glume, the 4th with the apex produced into a short beak.—Not uncommon in dry hilly situations in many parts of Ceylon, and no doubt a small wild form of cultivated paddy. It is C. P. 2876 of Thwaites' distribution, his specimens having been collected at Kurunegala; and it occurs on the tops of many other hills, as on Beligala Kande, near Kegalla, whence it is recorded by Mr. R. W. Jevers, C.C.S., in the Journ. Asiatic Soc. (Ceylon Branch) for 1885, vol. viii., p. 353. In the dry eastern parts of the island I have met with it in many places, always in dry sandy soil under the shade of trees, and usually at no great distance from a stream.

This small wild rice is a very different-looking plant from the large wild form commonly found in marshes, and known to the natives as "Uru-wi," which is not greatly different from the ordinary cultivated paddy of the irrigated fields. It is often a very large plant, is (always?) strictly annual, with long thick cylindrical culms usually rooting at the nodes, a very large erect panicle, large spikelets, and a very conspicuous yellow or orange awn 2 or 3 in. long. It appears to be undoubtedly wild, and scarcely varies; the grain is excellent, but, from the habit which the plant possesses of ripening two or three grains only at a time, the labour of collecting it is very great.

Mr. Jevers' notice, above referred to, is as follows:—"I was shown a species of grass, or 'Hill-paddy,' which looks like a small kind of *El vi*, growing among the jungle on the top of the rock, and said to be peculiar to the place." "El-wi" (= Hill or Rock Paddy) is a kind of cultivated rice grown here under many varieties in uplands and mountain districts without irrigation. "Elwi" is a large annual grass, with the culms slightly compressed or nearly cylindrical below, very long narrow leaves tapering to the base, hairy above, and with a long tapering acute ligule $\frac{3}{4}$ in. long; the spikelets are large, $\frac{1}{4}$ in. long, in a nodding panicle 10 in. in length, overtopped by the highest leaf; and the awn is usually absent, save in the distal spikelets, where it varies in length, but does not exceed that of the glume itself. It is thus not unlikely that var. *collina* is the wild original of this Hill Paddy of Ceylon, and that the differences noted may result from long cultivation; on the other hand, there is a likelihood that it may be merely a degenerated state of the cultivated plant propagated by accidentally-scattered seed. The question is one scarcely possible to decide absolutely.

**Garnotia Fergusonii**, n. sp. A wiry grass, with elongated very slender smooth cylindrical culms attaining 3 ft. in length, much branched above, the very numerous branches erect, parallel, with terminal inflorescence, below clothed with the dry persistent striate leaf-sheaths, at the base quite bare; leaf-blade short (1½–2 in.), spreading, linear, very acute, strongly nerved, articulate with the sheath, sparingly hairy on both surfaces with long weak scattered hairs; ligule a thick tuft of similar hairs; sheaths strongly striate, glabrous or nearly so, the uppermost longer than the blade; panicle small, 2–4 in. long, pedunculate, stiff, erect; branches smooth; spikelets shortly stalked or sessile, with a tuft of very short white hairs round the base; lowest glume boat-shaped, acuminate, 3-veined, purple, 2nd rather shorter and more membranous, 3rd lanceolate, 1-veined, with a terminal awn about its own length.—Found by the late W. Ferguson at the summit of the Knuckles Mountains, Central Prov., at about 6000 ft. elevation, on the last excursion he made, March, 1887; to whose memory I dedicate the species. Of the Ceylon species of this difficult genus, this appears to be nearest to *G. courtallensis* Thw., a very common plant in wet places in the hills; but it differs conspicuously in habit and in the character of the inflorescence. *G. fuscata* Thw. seems to be also near, but clearly differs in the long setaceous points to the lower glumes, the much longer awn, and the conspicuous tuft of hairs beneath the spikelet. I have, however, very indifferent material for that species.

**Garnotia panicoides** Trim. MS. Erect, with stems somewhat decumbent at base, 2–3 ft. high, glabrous throughout; blades of lower leaves linear-lanceolate, 6 in. long by ½ in. wide, gradually tapering to long acute apex, narrowed at base, flat; sheaths short, quite smooth; ligule none; panicle large, 9–12 in. long; branches numerous, slender, erect-patent; spikelets numerous, rather distant, erect, narrow, shortly stalked or sessile; glumes all of nearly equal length, thin, transparent, acute, 3-veined, the 3rd broader, apiculate, quite awnless.—I found the specimens above described in a bundle of grasses collected by the late W. Ferguson on Culloden Estate, Kalutara, probably in 1886. They are not very complete, but seem to represent a very distinct species, with much the appearance of a *Panicum* of the *P. montanum* set. Of our Ceylon Garnotias this is nearest to *G. micrantha* Thw., which is not unfrequently found without awns.

*Arundinella stricta* Nees. Near Fort Ostenburg, Trincomalie, abundantly, Dec. 1885, collected by the late W. Ferguson. This is a tall grass, with a long lax narrow panicle, somewhat reminding one of the English *Arrhenatherum avenaceum*. It is clearly the species of Nees, which was based on Cuming's n. 1415, from the Philippines (Kew Journ. Bot. ii. (1850), 102), as I have verified by an inspection of the plant in the British Museum. The same plant is named *Danthonia luzoniensis* by Steudel (Syn. Gram. 245). This is an interesting addition to our grass-flora of a species which does not appear to have been previously recorded from any locality beside the original one.

**Sporobolus Wallichii** Munro MS. in Herb. Kew (Wallich, n. 3769 A). Apparently very tall; glabrous; leaf-blades very long, narrow, involute-setaceous, with filiform ends; sheaths glabrous, striate, with a small tuft of white cilia at the mouth; ligule very short; panicle long, 15–24 in., rather narrow, with very numerous rather short slender flexuous branches; spikelets numerous, small, erect on delicate filiform pedicels; lowest glume very small, very obtuse, 2nd glume about twice as long, obtuse or acute, both membranous, broad, not keeled, erose on margin of upper portion, 3rd glume quite twice as long, narrow, acute, 4th glume similar, about twice the length of the ripe seed.—Collected by the late W. Ferguson, early in 1886, somewhere between Trincomalie and Kantalai Tank; the specimens are indifferent, merely "tops." I was inclined to refer this to *S. minutiflorus* Link, and am indebted to Prof. Oliver for referring it to Wallich's plant, and Munro's name, which is, I suppose, now for the first time published. It differs from *S. minutiflorus* in having spikelets almost twice as large, and longer and more acute upper glumes.

*Eragrostis* (*Myriostachya*) *Wightiana* Benth. (*Leptochloa* Nees in Steud.). I collected this magnificent grass in abundance by the sides of the tidal estuary of the Maha-weli River at Koddi-ar, in Trincomalie Bay, Aug. 1885. It forms a handsome reed 4 or 5 ft. high, growing in large patches in the intervals of mangrove thicket, and it is remarkable that so conspicuous a plant should not have been previously recorded from the locality. In habit this is so unlike any other *Eragrostis* (*E. cynosuroides* alone making some approach toward it) that, taking into consideration also the awned lower glumes unknown in any other species, Bentham's section *Myriostachya* almost deserves generic standing. Mr. C. Curtis has lately sent this grass from Penang; hitherto it had, I believe, been known only from the Soonderbun, below Calcutta. A rather inadequate figure is given in Icones Plant. t. 1381; the panicle-branches spread nearly horizontally, and not as drawn there from dried specimens.

*Asplenium* (*Thamnopteris*) *Grevillei* Wall. I first saw this fern in the garden of A. C. Lawrie, Esq., of Peradeniya, who assured me that a native collector had brought it in from the jungle. We were afterwards taken by this man to the locality, an old and overgrown areca-palm plantation at Wéligala, not far from Gampola, in the Central Province, where the fern was growing in abundance. This was in August, 1887; in the next month the same man guided the Garden collectors to a second locality, between Matale and Wattegama, which appears to be quite similar in character to the other. In both places the plant grows at the bases of the palms, among the tufts of aërial roots. It is not easy to decide on the claims of this to be a native here. On the one hand, there is no geographical improbability in its being so, its hitherto known localities being Tavoy and Mishmi; neither is it a fern likely to be intentionally introduced, as it has no beauty to attract collectors. But the localities here are neither of them wild ones, and are in places extremely well-known and very long under cultivation; moreover, the search for ferns in Ceylon has been very keen. On the whole, I am rather inclined to believe an accidental introduction at no very distant date.

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## AN ERRATIC IVY.

By Maxwell T. Masters, M.D., F.R.S.

The normal flowers of the Ivy, *Hedera Helix*, have perigynous or almost epigynous stamens, a partially "inferior" ovary surmounted by a dome-shaped disc continuous with, and which is indeed a mere expansion of, the base of the styles, as in the Umbelliferæ. The interior has three or more cavities with an axile placentation and a single ovule pendulous from the upper and inner corner of each of the ovarian compartments. Some flowers obligingly communicated by Mr. T. R. Archer Briggs, from the neighbourhood of Plymouth, presented a very different structure, and showed deviations from the natural conformation, such as have not to my knowledge been previously recorded. The "receptacle" was turbinate as usual, giving off, from its upper border, sepals and petals of the ordinary character and arranged in the ordinary way. The stamens were hypogynous and emerged from the receptacle around the base of a fleshy green cup occupying the centre of the flower. This cup was more or less fluted, and bore upon its free edge a ring of anthers of a reniform shape and curled over the margin of the cup. There was no trace either of styles, placentas, or ovules; but within the cup the axis terminated in some instances in a small point, in other cases in a shoot bearing an imperfectly developed flower destitute of sepals and petals but having a variable number of hypogynous stamens and a free ovary with three isolated styles. These appearances are represented in Fig. 1, made for me by Mr. Worthington Smith, but it should be stated that the conditions were slightly different in detail in different flowers.

The explanation seems to be that the carpels were congenitally united into a tube; that they remained free from any adhesion with the receptacle externally; that their margins were not infolded; and that no ovules were developed from them, but that anthers or male sporangia were developed from the free edge at the place where styles and stigmas would, under ordinary circumstances be developed. The ovarian character of the anther-bearing cup was further ascertained by my friend Rev. Prof. Henslow, who traced in the anther-bearing cup the vascular cords corresponding to those which constitute the midribs of the carpels of the normal flower. The accompanying cut, Fig. 2 (p. 174), which has been kindly placed at my disposal by that gentleman, and which is taken from his recently published work on the 'Origin of Floral Structures,' illustrates the arrangement and distribution of the fibro-vascular cords in the pedicel and ovary of the Ivy under ordinary circumstances. In the pedicel there are four such cords as indicated in section at *a;* at a higher level these four divide, and the divisions are arranged in a ring or circle, as seen on a transverse section *b;* at the base of the receptacular tube fifteen such cords may be seen *c*, ten in one outer ring, five in an inner series; the outer ten pass upwards, one into each of the five sepals and five petals respectively; the inner five are separated radially from those cords which are superposed to the sepals and are destined to supply the stamens. Then from the five cords of the outer series which supply the petals two divisions are given off, of which one runs up the centre of each carpel, and the other up the axis, *d*. If only four or three ovarian cells are developed, then the central cords become fused

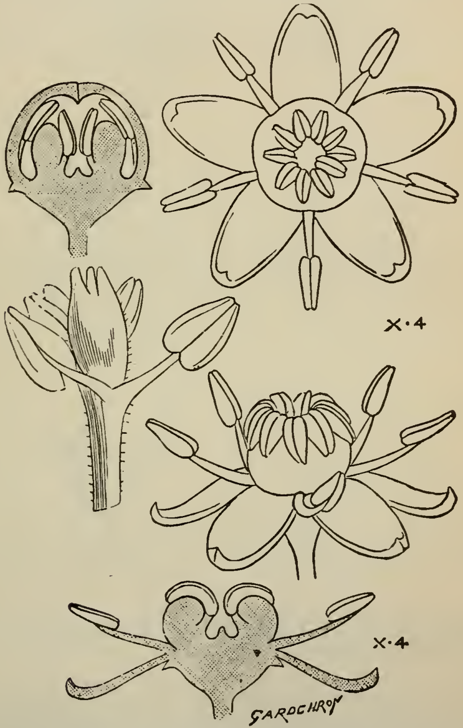

Fig. 1.—Abnormal flower of Ivy seen from the top, the side, and in median vertical section. To the left is seen an abnormal stalked flower, which occupied the centre of one of the flowers.

into four or three, alternating with the ovarian cavities *e*, ultimately dividing, so as to form twice as many cords as there are ovarian cells, some divisions supplying the ovules, *f*, the others passing into the styles.

Assuming this presentation of the facts to be correct, the explanation of the monstrous flowers is complex, and the processes of growth and development somewhat conflicting.

First of all the separation, or rather the want of union, between the carpels and the receptacular tube, entailing hypogyny in place of epigyny, must be considered as an arrest of development and a possible illustration of reversion to an antecedent condition. Similar changes are not uncommon among the Umbelliferæ and other orders with a normally "inferior," ovary,* and may be plausibly attributed to reversion to an ancestral condition such as was in existence before the nascent succulent tissues had tempted the appetite of the birds. This development by variation of this tissue would, according to modern theories, be encouraged by

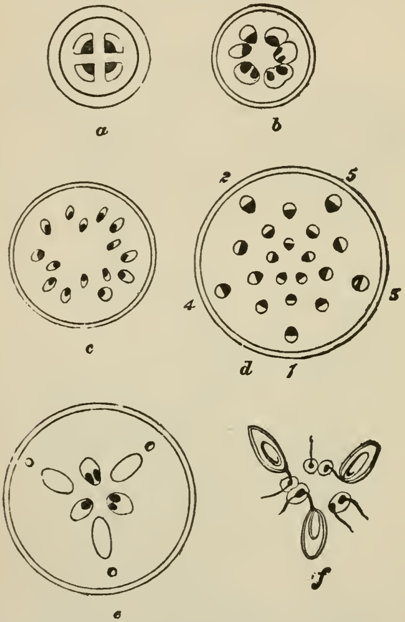

Fig. 2.—Plans showing the arrangement of the vascular cords at different levels in the pedicel and flower.

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* While writing these remarks I have been favoured by Dr. Shearer, of Liverpool, with the opportunity of inspecting a Rose (*Rosa spinosissima*) wherein the receptacular tube was undeveloped, and the free carpels were exposed on a nearly flat receptacle as in *Potentilla*, or as in *Hortonia* (Monimiaceæ), the stamens being apparently hypogynous.

the stimulus created by the birds in the satisfaction of their needs, and the dispersal of the seed would in consequence be facilitated. It is impossible to treat these matters other than as more or less plausible hypotheses, and it seems equally impossible to deny that the appearances in question may be the outcome of recent or temporary conditions, and have no genetic significance whatever. Similar remarks apply to the valvate condition of the carpellary edges. The absence of ovules is clearly a case of suppression or complete arrest of development which, if really of genetic significance, points to a former unisexual condition, such as is not uncommon in Umbelliferæ. The suppression of the ovules may, however, be correlative with the development of anthers on the upper margin of the united carpels, and be an exemplification of the process of compensation—redundancy of anthers, deficiency of ovules.

The prolongation of the floral axis is clearly due to excess of growth facilitated, no doubt, by the condition of the carpels which leaves an open centre free from obstruction, and through which the elongation of the axis may consequently take place. The formation of a supernumerary flower at the extremity of this prolonged axis is obviously also a case of over-development. This prolification, at least, can hardly be regarded as having any genetic significance. The supernumerary stamens of course suggest the possibility that they represent the condition of affairs in *Tupidanthus* and other Hederaceæ, in which the stamens are normally pleiotaxic, but, as before mentioned, the distribution of the vascular cords, as examined by Henslow, shows that the anther-bearing cup is carpellary in its nature. The formation of anthers on the open carpels seems then to be rather a perversion of the ordinary course of development than an absolute mutation of carpels to stamens. We know now that sporangia of this character may be formed in varied organs without any actual change of one organ into another. Substitution has indeed always been recognised as more correctly representing the real progress of affairs than permutation or "metamorphosis."

Terminology, when once it gets established, is apt to be conservative in its application, tyrannical in its sway, stagnant in the midst of change, and misleading to the unwary. Of course, this stability has many advantages, but it seems to point to the desirability of making terms, as also names of plants, mere tokens, and not in themselves propositions or statements of fact. Nevertheless, for convenience of arrangement, these monstrous Ivy-flowers may be said to have presented examples of misplacement of the stamens, dialysis and displacement of the carpels, staminody of the pistil, suppression of the placentas, ovules and styles, and of median floral prolification. Looked at historically they illustrate arrest of growth and development in some points, excess and superfluity in others; physiologically they represent almost the greatest degree of interchange possible; and genealogically they afford abundant ground for speculation as to what may have been! It is to be hoped that next season Mr. Briggs may be so fortunate as to secure some of these masquerading Ivy-flowers in various stages of development, from the earliest to the latest, and so afford a surer basis whereon to construct the morphological pedigree.

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# NEW FERNS FROM WESTERN CHINA.

By J. G. Baker, F.R.S., F.L.S.

The following are the novelties and more interesting species contained in a large collection made in the Provinces of Hupeh and Szchewan, in Western China, lately received from our indefatigable correspondent, Dr. Henry, and a smaller collection sent by Mr. C. Ford, of the Hong-kong Garden. My last paper on new ferns from the same region will be found in Journ. Bot. 1888, p. 225.

52.* **Hymenophyllum** (Leptocionium) **Henryi**, n. sp.—Rhizome thread-like, wide-creeping. Stipes very slender, about an inch long, faintly winged upwards. Frond oblong, tripinnatifid, glabrous, 1½–2 in. long; pinnæ crowded, oblong, much cut away on the lower side at the base; ultimate segments oblong, 1-nerved, sharply serrated, ¼ line broad. Sori many to a pinna, terminal on produced or abbreviated segments. Indusium orbicular, cleft to the base; valves sharply serrated.—Hupeh, *Henry* 5457! Allied to *H. Tunbridgense*, but more compound, with habit of small forms of *H. javanicum*.

*Davallia hirsuta* Sw. *Henry* 6172.
*Cryptogramme Brunoniana* Wall. *Henry* 6948.
*Pteris excelsa* Gaudich. *Henry* 7109.
*Asplenium varians* H. & G. *Henry* 5964. New to China.
*A. Wichuræ* Mett. *Henry* 7882, 7896.
*A.* (*Athyrium*) *Henryi* Baker. *Henry* 7646.

3.* **Aspidium** (Polystichum) **basipinnatum,** n. sp.—Caudex erect. Stipes densely tufted, erect, slender, stramineous, 3–6 in. long, clothed throughout with large spreading ovate brown membranous paleæ. Fronds lanceolate, sometimes lengthened out and rooting at the tip, 6–9 in. long, ¾–1¼ in. broad, moderately firm in texture, naked above, paleaceous over the surface, and especially on the midrib beneath, pinnate at the base, with oblong simple entire pinnæ ⅓–½ in. broad, which are attached to the rachis by a broadly adnate base, pinnatifid upwards. Veins free, copiously pinnate in the pinnæ, with ascending veinlets. Sori biserial in the pinnæ and lobes, dorsal on the veins, nearer the midrib than the margin. Indusium small, fugacious.—North River, Kwantung Province, *Ford* 103! A very distinct species, allied to the West Indian *A. rhizophyllum* Sw. and *A. Plashnickianum* Kunze.

*A. lanceolatum* Baker. *Henry* 7835.
*A. Atkinsoni* Clarke. *Henry* 6171. New to China.
*A. xiphophyllum* Baker. *Henry* 7838.
*Nephrodium enneaphyllum* Baker. *Henry* 7881.

117.* N. (Lastrea) **Fordii**, n. sp. — Rhizome short-creeping, densely clothed with large bright brown membranous lanceolate paleæ, like those of *N. odoratum*. Stipe 4–6 in. long, slender, flexuose, stramineous, scaleless, glabrous. Frond fragile, membranous, pale green, slightly pubescent, deltoid, 4-pinnate, 6–8 in. long and broad; pinnæ deltoid, the lowest much the largest and much produced on the lower side; ultimate segments oblong, crenato-pinnatifid, cut away on the lower side at the base. Veins free, distinct, erecto-patent, one running into each final lobe. Sori medial, dorsal on the final veinlets. Indusium pale, reniform, membranous, persistent. — North River, Kwantung Province, *Ford* 104! Habit and cutting of *N. odoratum* Baker, but membranous and finely pubescent, with much smaller glabrous indusia.

169.* N. (Eunephrodium) **rampans**, n. sp. — Rhizome hypogæous, wide-creeping. Stipe naked, stramineous, ½ ft. long, deeply grooved down the face. Frond oblong-deltoid, simply pinnate, rigidly subcoriaceous, glabrous, about a foot long, 8–10 in. broad. Pinnæ about 17, distant, sessile, lanceolate, 5–6 in. long, ½–⅝ in. broad, crenate, the lowest not reduced. Main veins ⅛–⅙ in. apart; veinlets 6–7-jugate. Sori copious, small, subcostal. Indusium minute, fugacious. — Hupeh, *Henry* 7844! Allied to *N. sopheroides* and *unitum*.

*Polypodium gymnogrammoides* Baker. *Henry* 6440.

*P. malacodon* Hook. *Henry* 6170. New to China.

297.* P. (Phymatodes) **involutum**, n. sp. — Rhizome short-creeping; basal paleæ lanceolate, nearly black. Fronds rigid, linear, contiguous, sessile, simple, reaching a foot in length, ⅛–⅙ in. broad at the middle, tapering to base and apex, bright green, rigid, with revolute edges. Costa broad and distinct; veins quite hidden. Sori oblong, confined to the upper half or third of the frond, filling up the whole space between the midrib and involute margin.— Hupeh, *Henry* 6859! Allied to *P. Lewisii* Baker in Journ. Bot. 1875, 201, gathered by Dr. Shearer in the Province of Kiu-kiang.

348.* P. (Phymatodes) **subhastatum**, n. sp.—Rhizome slender, creeping to a length of a foot or more; paleæ small, lanceolate, membranous, bright brown. Stipes very short. Fronds simple, ovate or deltoid, hastate or truncate at the base, acute, 1–2 in. long, moderately firm in texture, green and glabrous on both surfaces, decurrent in a narrow wing halfway down the stipe. Veins anastomosing copiously in irregular hexagonal areolæ with free included veinlets. Sori globose, superficial, placed in a single row midway between the midrib and margin in the upper part of the frond.— Hupeh, *Henry* 5450! Midway between *P. rostratum* and *Spectrum*.

11.* **Gymnogramme** (Leptogramme) **gigantea**, n. sp.—Stipe 1½ ft. long; basal paleæ large, lanceolate, crisped. Frond ample, deltoid, tripinnatifid, moderately firm, green and glabrous on both surfaces. Central pinnæ oblong-lanceolate, reaching a length of 1½–2 ft. and a breadth of 6–8 in.; pinnules sessile, lanceolate, ¾–1 in. broad, cut halfway down to the midrib or more into oblong obtuse segments ⅙ in. broad. Veins copiously pinnate in the tertiary segments; veinlets erecto-patent, often forked. Sori linear, $\frac{1}{8}$–$\frac{1}{6}$ in. long, placed low down on the veins.—Hupeh, *Henry* 6517! Habit of the Old World *Asplenium maximum* Don and New World *A. radicans* Schk.

*G. japonica* Desv. *Henry* 7107 A, 7821.

66.* G. (Selliguea) **grammitoides**, n. sp.—Rhizome slender, wide-creeping; paleæ minute, lanceolate, brown. Fronds oblanceolate, simple, sessile, subcoriaceous, glabrous, 2–3 in. long, $\frac{1}{4}$–$\frac{1}{3}$ in. broad more than three-quarters of the way up, narrowed gradually to the base. Veins anastomosing copiously in irregular hexagonal areolæ. Sori confined to the upper third or quarter of the frond, oblique, parallel, reaching a length of $\frac{1}{8}$–$\frac{1}{6}$ in., not reaching within a space of the edge. — Hupeh, *Henry* 5451! Szechwan, *Henry* 7531! Allied to *G. lanceolata* Hook. Habit of the large forms of *Polypodium* (*Graminitis*) *australe.*

*Ophioglossum reticulatum* L. *Henry* 5953. New to China.

*Selaginella tenera* Spring. *Henry* 7561.

## ADDITIONAL NOTES ON THE FLORA OF DERBYSHIRE.

By the Rev. W. H. Painter.

The following plants have been communicated to me by the botanists whose names are placed against them, or seen by me since 1881:—

*Ranunculus trichophyllus* Chaix. Via Gellia. Sent me by Mr. C. Bailey as *R. Drouetii* Godr., but named thus by Mr. J. Groves.

*Fumaria pallidiflora* Jord. Repton (J. H. Burkill).

*Erysimum cheiranthoides* L. Draycott (Rev. A. C. Hassé).

*Lepidium campestre* R. Br. Cauldwell (J. T. Harris).

*Reseda lutea* L. Spondon (Rev. A. C. Hassé).

*Stellaria media* With., var. *neglecta* Weihe. Matlock Bath (R. Roberts, communicated to me by J. Whitehead).

*Montia fontana* L., var. *rivularis* Gmel. Charlesworth Coombs (J. Whitehead).

*Lotus tenuis* W. & K. Osmaston Manor (Smith MSS., by which is intended manuscript notes upon the Flora of this county by the late Rev. G. E. Smith preserved at University College, Nottingham, access to which has been kindly allowed me by the Committee of the College).

*Lathyrus sylvestris* L. Weston-upon-Trent (Atkinson and Hassé). New County Record.

*Rubus suberectus* Anders. The Park, Osmaston (Smith MSS.). N. C. R.

*Potentilla argentea* L. Near Sandiacre Church (Rev. F. Atkinson). N. C. R.

*Rosa tomentosa* Crn., var. *subglobosa* Sm. Miller's Dale! (*fide* J. G. Baker).—*R. canina* L., var. *sphærica* Gren. Miller's Dale!—Var. *decipiens* Dum. Near to Cressbrook Dale!—Var. *coriifolia* Fr. Cressbrook Dale and Burbage! (*fide* J. G. Baker).

*Pyrus Malus* L., var. *mitis* Wallr. Repton (E. Candler).

*Drosera rotundifolia* L. East Moor (G. Scrimshaw).

*Peplis Portula* L. Osmaston Manor (Smith MSS.).

*Galium sylvestre* Poll., var. *nitidulum* Thuill. Castleton (J. Whitehead).

*Solidago Virgaurea* L., var. *cambrica* Huds. Topley Pike (C. T. Green).

*Hieracium argenteum* Fr. Near Matlock Bath ! (*fide* F. J. Hanbury).—*H. murorum* L. pt.; *H. cæsium* Fr., var. *Smithii* Baker; *H. vulgatum* Fr., vars. *rubescens* and *nemorosum* Backh.; and *H. tridentatum* Fr. (N. C. R.). Ashwood Dale !

*Leontodon hirtus* L. Wirksworth (Rev. G. H. Milnes). Charlesworth (J. Whitehead).

*Wahlenbergia hederacea* Reich. Repton Rocks, in small quantity, where it was found by a Repton school-boy (J. Hagger). N. C. R.

*Pyrola minor* Sw. Near Miller's Dale (J. C. Wilson; comm. J. Whitehead).

*Hypopithys multiflora* Scop. Matlock Bath (Hey, in Smith MSS., authentic specimen from Miss J. Fox in Smith MSS.). N. C. R.

*Menyanthes trifoliata* L. Rodsley (Smith MSS.).

*Orobanche major* L. Stanton Moor (Hassé). N. C. R.

*Spiranthes autumnalis* Rich. Osmaston Manor (Smith MSS.). N. C. R.

*Habenaria albida* R. Br. Near Glossop (T. Whitelegg). N. C. R.

*Juncus compressus* (N. C. R.) Ockbrook (Smith MSS.).

*Sparganium simplex* Huds. Near Ashbourne (Smith MSS.).

*Acorus Calamus* L. Burton-on-Trent (J. T. Harris).

*Potamogeton pusillus* L. Lake, Osmaston Manor (Smith MSS.).

*Osmunda regalis* L. Near Ashbourne (Rev. R. Fielden). N. C. R.

*Equisetum maximum* Lam. Ockbrook (Smith MSS.).

*Lycopodium Selago* L. Kinder Scout (J. Whitehead). — *L. clavatum* L. Stenior Clough (W. J. Hannan).

# BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.

By James Britten, F.L.S., and G. S. Boulger, F.L.S.

(Continued from p. 151.)

**Hyndman, George Crawford** (1796–1867): b. Belfast, 14th Oct. 1796; d. Belfast, 18th Nov. 1867. Collected in N. of Ireland. Contrib. to Flora of Ulster. Herbarium in possession of his nephew, Hugh Hyndman, LL.D. 'Fl. North-east Ireland,' p. xv.

**Ibbetson, Agnes** (1757–1823): b. London, 1757; d. Exmouth, 1823. Papers in Nicholson's Journal, and Phil. Mag. 1809–1822. Rees; Pritz. 155; R. S. C. iii. 487; Bot. Mag. 1259; Watt, 532, f. *Ibbetsonia* Sims = *Cyclopia* Vent.

**Ibbotson, Henry** (1816 ?–1886): b. 1816 ?; d. York, 12th Feb. 1886. Schoolmaster. Sold dried plants. 'Cat. Flowering Plants,' 1848. 'Ferns of York,' &c. Plants of Castle Howard in Phyt. i. 577, 581. Contributed to Baines' and Baker's 'North Yorkshire.' Pritz. 155; Jacks. 231; 'Nat. Hist. Journ. and School Reporter,' 15th March, 1886.

**Imray, W.** (d. 1880): d. Dominica, W. Indies, 22nd Aug. 1880. M.D. Practised in Dominica and investigated Flora, 1837–1880. Plants at Kew. Gard. Chron. 1880, ii. 361; Journ. Bot. 1880, 320. *Vaccinium Imrayi* Hook.

**Ingen-Houss, John** (1730–1799): b. Breda, 1730; d. Bowood, 7th Sept. 1799. M.D., Vienna. F.R.S. 'Experiments upon Vegetables,' 1779. 'The Food of Plants,' 1796. Pritz. 156; Rees; Jacks. 67, 105; Watt, Bibl. Brit. 534, o; Gent. Mag. 1799, ii. 900. *Ingenhouzia* Bertero = *Balbisia* DC. *Ingenhoussia* Dennstadt = *Cissus* L. *Ingenhoussia* E. Meyer = *Amphithalea* Eckl. & Zeyh. *Ingenhouzia* Moç. & Sess.

**Inglis, Andrew** (1837–1875): b. Edinburgh, 1837; d. Aberdeen? 13th March, 1875. M.D., Edinb., 1859. F.B.S. Edinb., 1856. Trans. Bot. Soc. Edinb. xii. 410.

**Inglis, R.** (fl. 1839). Of Canton. Collected in Kunawur. Royle, 'Illustrations,' viii.

**Ironside, Lieut.-Colonel** (fl. 1740–1799). 'Of the Sun-Plant,' Phil. Trans. 1740. 'Account of a Banian Tree,' Phil. Mag. iv. 1799, 360. R. S. C. iii. 499; Watt, 535, x.

**Irvine, Alexander** (1793–1873): b. Daviot, Aberdeenshire, 1793; d. Chelsea, 13th May, 1873. Aberdeen Univ., 1824. Lived at Albury, Guildford, and (from 1851) Chelsea. Angel of Irvingites, White Notley, Essex. 'London Flora,' 1838. Edited 'Phytologist,' n. s. 1855–1863, and 'Botanist's Chronicle,' 1863–1865. Pritz. 158; Jacks. 563; Journ. Bot. 1873, 222; R. S. C. iii. 498; Gard. Chron. 1873, 1017; Proc. Bot. Soc. Lond. 1839.

**Irving, E. G.** (d. 1855): d. Abbeokuta, Lagos, W. Africa, 1855. M.D. Surgeon, R.N. 'Notes on the cultivation of Cotton in .... Western Africa,' Journ. Bot. 1855, 297. Plants at Kew. Trans. Linn. Soc. xxiii. 167. *Irvingia* Hook. f.

**Jack, William** (1795–1822): b. Aberdeen, 29th Jan. 1795; d. at sea, on way from Sumatra to Cape, 15th Sept. 1822. M.D. In Bengal Medical Service: afterwards with Raffles in Sumatra. Fl. Indica, i. 48. Comp. Bot. Mag. i. 122. Writings reprinted in Calc. Journ. Nat. Hist. iv. Pritz. 153; Jacks. 392; R. S. C. iii. 506. *Jackia* Bl. = *Xanthophyllum*. *Jackia* Wall.

**Jackson, George** (1790 ?–1811): b. Aberdeen, 1790?; d. London, 12th Jan. 1811; bur. St. George's burying-ground, Marylebone. F.L.S., 1808. Edited Andrews' Bot. Repository, 1807–11. Had charge of Lambert's herbarium. 'Ormosia' (with plates by Jackson), Trans. Linn. Soc. x. 358. Contributed to Eng. Bot. 1251, 2459. Rees (under *Jacksonia*); R. S. C. iii. 509; Journ. Bot. 1886, 137. *Jacksonia* Rafin. = *Polanisia*. *Jacksonia* Br.

**Jackson, Miss M. A.** (fl. 1834–1842). Of Lichfield. Botanical artist. 'Pictorial Flora,' 1840; illustrated by lithos. from spp. coll. in Wales, Midland and Northern counties, 1834–1838. 'Botanical Terms illustrated,' 1842. Jacks. 563; R. S. C. iii. 510.

**Jackson, Mrs. Maria Elizabeth** (fl. 1797–1827). Of Somersal Hall, Uttoxeter, Stafford. 'Botanical Dialogues,' 1797. 'Sketches of the Physiology of Vegetable Life.' 'Botanical Lectures,' 1804.' 'Florist's Manual,' 1827. Jacks. 563.

**Jackson , William** (d. 1848): d. Dundee, 12th March, 1848. Ass. Bot. Soc. Edinb., 1840. Treas. Dundee Nats. Assoc. '*Mimulus luteus*,' Phyt. ii. 421. Phyt. iii. 109.

**Jacob, Edward** (1710?–1788): b. 1710?; d. Faversham, Kent, 26th Nov. 1788. F.S.A., 1755. Surgeon. 'Plantæ Favershamienses . . . .' 1777. Pult. ii. 272; Pritz. 153; Gent. Mag. 1788, ii. 1127. Portr. by C. Hall, 1777, in 'Plantæ.'

**Jacob, Rev. John** (fl. 1835–1837). LL.D. Master of Devonport Grammar School. Minister, St. Aubyn Chapel, Devonport. 'West Devon and Cornwall Flora,' 1835–1837. Fl. Plym. xxx.

**James, John** (fl. 1680). Surgeon. Made a book of drawings of plants, "whilst he was in Barbary, being a slave there near twenty years," Petiver, Gazophyl. 57, 66.

**Jameson, J. S.** (d. 1888): d. Bangala, Congo State, 17th Aug. 1888. Naturalist and botanist to the Emin Relief Expedition.

**Jameson, William** (1796–1873): b. Edinburgh, 1796; d. Quito, 23rd June, 1873. M.D., Edinb., 1818. Went to Greenland, 1818, to S. America in 1820, and lived at Quito from 1826. Prof. Chem. & Bot., Quito, 1827. 'Synopsis Pl. Æquatoriensium,' Mem. Wern. Soc. iii. 418. Pritz. 155; Jacks. 375; R. S. C. iii. 532; viii. 12; Journ. Bot. 1873, 318; Gard. Chron. 1872, 1622; 1873, 1151; Trans. Bot. Soc. Edinb. xii. 19. *Potentilla Jamesoniana* Grev. *Jamesonia* Hook. & Grev.

**Jameson, William** (1815–1882): b. Leith, Midlothian, 1815; d. Deyrah Doon, N. W. P., 18th March, 1882. M.D., Edinb.? F.L.S., 1864. Bengal Medical Service, 1838. Superintendent, Saharunpore Bot. Gard., 1842-1875. Pritz. 155; Fl. Indica, 73; R. S. C. iii. 533; viii. 12; Proc. Bot. Soc. Edinb. 1882, with bibliog.; Proc. Linn. Soc. 1882–3, p. xlii.

**Janson, Joseph** (1789–1846): b. Tottenham, Middx., 12th July, 1789; d. Stoke Newington, London, 30th April, 1846. F.L.S., 1831. Discovered *Spiranthes æstivalis* in England. Proc. Linn. Soc. i. 80, 301. *Jansonia* Kippist.

**Janson, Thomas Corbyn** (1809–1863): b. 1st July, 1809; d. Stamford Hill, London, 23rd June, 1863. F.L.S., 1843. Friend of Joseph Woods and E. Forster. Proc. Linn. Soc. 1864, xxix.

**Jenkins, F.** (fl. 1833–1847). Major. Commissioner of Assam. Investigated bot. of Assam. Calc. Journ. Nat. Hist. iv. 233. "Sent large collections of Assam plants to Nat. Hist. Soc., Cornwall," Hook. Gen. Fil. t. lxxv. *Jenkinsia* Hook. = *Acrostichum*. *Jenkinsia* Griff. = *Miquelia*.

**Jenkinson, James** (fl. 1775). Of Yealand. 'Generic and specific descrip. of Brit. pl.,' 1775. Pritz. 155; Jacks. 232.

**Jenner, Edward** (1803–1872): b. 13th March, 1803; d. Lewes, 13th March, 1872. A.L.S., 1838. Studied Microscopic Algæ. 'Fl. of Tunbridge Wells,' 1845. Eng. Bot. 2925; Pritz. 156; Jacks. 261; Proc. Linn. Soc. 1871–2, p. lxix; Gard. Chron. 1872, 398.

**Jerdon, Archibald** (1819–1874): b. Bonjedward, Roxburghsh., 21st Sept. 1819; d. Jedburgh, 28th Jan. 1874. Cryptogamist. Contrib. to Phyt. ii., &c. Proc. Berwicksh. Field Club, vii. 338, with bibliography. Trans. Bot. Soc. Edinb. xii. 201. R. S. C. iii. 547; viii. 25. *Lophiostoma Jerdoni* B. & Br.

**Jerdon, Thomas Claverhill** (1811–1872): b. Bonjedward, Roxburghsh., 1811; d. Upper Norwood, London, 12th June, 1872. F.L.S., 1864. Zoologist. Surgeon-Major in Madras Medical Service. Elder brother of preceding. Sent plants to Wight (Icones, t. 1351). Proc. Linn. Soc. 1872–3, xxxii. *Jerdonia* Wight.

**Joad, George Curling** (d. 1881): d. Wimbledon Park, Surrey, 24th Oct. 1881. F.L.S., 1871. Herb. at Kew. Proc. Linn. Soc. 1881–2, lxiv; Gard. Chron. 1881, ii. 605.

**Johns, Rev. Charles Alexander** (1812–1874): b. 1811; d. Winchester, 28th June, 1874. F.L.S., 1836. B.A., Dublin, 1841. 'Flora Sacra,' 1840. 'Botanical Rambles,' 1847–1852. 'Flowers of the Field,' 1853; ed. 21, 1885. Discovered *Trifolium strictum.* First President Hants Lit. and Philosophical Soc. Eng. Bot. 2792, 2949–50; Pritz. 156; Jacks. 564; R. S. C. iii. 555; Journ. Bot. 1874, 256.

**Johns, William** (fl. 1826). M.D. F.L.S., 1824. Of Manchester. 'Practical Botany,' 1826. Pritz. 157; Jacks. 37.

**Johnson, Charles** (1791–1880): b. London, 5th Oct. 1791; d. Camberwell, Surrey, 21st Sept. 1880. Lecturer, Guy's Hosp., 1830–1873. Edited 'Eng. Bot.' ed. 2, 1832–1846. 'Ferns of Great Britain,' 1855. 'British Poisonous Plants,' 1856. 'Grasses of Great Britain,' 1861. Pritz. 157 (incorrect); Jacks. 564; Journ. Bot. 1880, 351.

**Johnson, George William** (1802–1886): b. Blackheath, Kent, 5th Nov. 1802; d. Waldronhurst, Croydon, Surrey, 29th Oct. 1886; b. St. Peter's burial-ground, Croydon. F.L.S., 1830. Founder and editor of 'Cottage Gardener,' 1849, and 'Journal of Horticulture, 1860. Contributed to Loudon's Gard. Mag. from 1826. 'History of Gardening,' 1829. 'Dictionary of Gardening,' 1846. Pritz. ed. i.132; Jacks. 564; Journ. Hort. lxvi (1881), p. 11, with portr., reprinted in lxxv, 401.

**Johnson, Thomas** (d. 1644): b. Selby, Yorkshire; d. Basing House, Hants, Sept. 1644. Apothecary. M.D., Oxford, 1643. Lieut.-Col. Lived in Lincolnshire, Ger. em. 74, and had physic garden on Snow Hill in 1633. 'Iter . . . . Cantianum,' 1629. 'Enumeratio pl. in ericet. Hamsted.,' 1632. Gerard's Herball enlarged and amended, 1633. 'Mercurius Botanicus,' 1634 and 1641. 'Opuscula,' reprint, 1847. Pult. i. 126–134; Rees; Pritz. 157; Jacks. 564; Fl. Midd. 369; Cott. Gard. vi., 313; Wood, Athen. Ox. *Johnsonia* Miller = *Callicarpa* L. *Johnsonia* R. Br. *Johnsonia* Adans. = *Cedrela.*

(To be continued.)

## SHORT NOTES.

Rare Plants in Somersetshire.—Last July I gathered *Cicuta virosa* L., and *Rhynchospora fusca* Sm., on the "Turf," or Burtle, Moor, near Shapwick. I am informed by Mr. James W. White, F.L.S., of Clifton, that these plants have but rarely been seen in the locality of late years. Both appear in a list of Turfmoor plants, published by the late Mr. Thos. Clark, of Bridgwater, in the 'Proceedings of the Somerset Archæological and Natural History Society,' for the years 1856–7, where he says of the *Rhynchospora*, "In shallow, partially dry pits and reenes, in the heathy ground, sparingly interspersed with *R. alba*." The plant was known also to the late Wm. Sole as far back, at least, as 1782; for in his MS. flora of that date it is recorded, under the Linnean name of *Schœnus fuscus*, as growing in "Burtle Moor, near Mark." A list of plants gathered near Shapwick, by Broome, of Bath, about the year 1855, includes *C. virosa* and *R. fusca;* and the former was found by Miss M. W. Mayow many years ago, at Burnham (Som.), and at Easton in 1880, but we are not aware of any further record for either plant in North Somerset. I noticed only a very few plants of *Rhynchospora*, but there were perhaps a dozen of the *Cicuta* growing in a ditch, which was at the time somewhat flooded. I have also specimens of *Rubus saxatilis* L., from a wood near Banwell Castle on the Mendip Hills, where it was seen in the summer of 1883. This *Rubus* is scarce in N. Somerset, and has only been seen in one other locality, *viz.*, at "Asham Wood, S.W. of Frome, in June, 1883, by the Rev. R. Murray." *Althæa officinalis*, gathered in a ditch at Dunball last August, and *Vicia lathyroides* in July on the Burnham Sandhills, are worthy of mention. Two other good plants, of extreme rarity in the district of the Bristol Coal-field, namely, *Anthemis nobilis* and *Lepidium Smithii*, were observed last summer; the first on Brean Down, and the latter near Uphill. Neither was plentiful. Last of all, but, as I now find, of very great interest, is a specimen of *Polygonum maritimum*, which I found on Burnham Sandhills in July, 1882. Mr. White tells me it is undoubtedly the true plant. This species has never before been recorded from the county of Somerset, and being one of the rarest British plants I hope that, although only a single example was perceived, it may still exist on the shore of the Bristol Channel.—H. S. Thompson.

Curious Form of Corylus Avellana. — This was found near Settle, Yorkshire, on March 27th last. In three or four instances, on the same tree, two heads of pistillate flowers had grown at the base of an undeveloped male catkin. The stigmas were numerous, very large, and of a most brilliant colour, which was also the case with all the gynœcia on that tree.—R. F. & F. P. Thompson.

Irish Potamogetons. — At page 86 Mr. Scully gives some notes I sent to Mr. Bennett on the Kerry Potamogetons. That on "*P. polygonifolius*, submerged form," has accidentally been reproduced in a manner which is not only misleading, but quite unintelligible as it stands, and commits me to views I do not really entertain.

May I ask readers of Mr. Scully's paper to ignore that note and to read as follows:—"This plant seems to be *P. Lonchitis*, the American form! Not the Irish 'Lonchitis' distributed by Messrs. Linton; which I cannot make agree with the American plant—especially in fruit-characters—nor either of them with the fenland *P. fluitans*." The beautiful specimens of "*P. polygonifolius* var. *linearis* Syme," collected by Mr. Scully, are simply the ordinary phyllodial state of *P. natans;* I can match these exactly with specimens of *P. natans* gathered in my pond to-day. This is not a "barren," but merely a young, state of the plant; and if it does not fruit in the Kerry locality, that is probably owing to unfavourable local conditions only. These narrow leaves are produced throughout the whole season of growth, and are even to be met with in young branches springing from stems which bear ripe fruit; they are the so-called "submerged leaves" of *P. natans*, and as they are much longer than the upper leaves they ultimately ascend to the surface and float there for a few weeks until they decay. They are true leaves and float with the upper surface exposed to the air. This exposed part of the leaf is the first to decay, and the lower part, or petiole, has been described as persistent; but (although I must plead guilty to having fallen into the same error) it is not really so. In my very extensive series of *P. natans*, collected in widely separated localities, both British and foreign, I can find no specimens of truly "persistent petioles"; nor can I remember ever having seen such. Actually, these leaves decay gradually, the lamina first, the petiole soon afterwards. As far as my observations go, the so-called "persistent petioles" are linear-leaved young shoots like Mr. Scully's "var. *linearis*." If I am wrong I hope some one will kindly correct me by sending a specimen of *P. natans* with truly persistent *leaf-stalks*. The joint at the upper part of the petiole is well defined in the more mature Kerry specimens, so no reasonable doubt can exist as to their being true *P. natans*. In 1885 Mr. Beeby sent me a similar form from Surrey, which has grown and fruited in my pond, and is typical *natans*, though of more slender growth and smaller in all its parts than the plant of our "fat" fenland waters usually is. With the Surrey and Kerry plants I place "*P. polygonifolius* v. *pseudo-fluitans* Syme. Recess. Galway, 1885," distributed through the Exchange Club by Messrs. Linton.—ALFRED FRYER.

PRIMULA HYBRIDS.—*P. veris* × *vulgaris*, gathered in E. Suffolk last May, has behaved oddly in cultivation. It commenced to flower in January, the blossoms at first being almost exactly like those of *vulgaris*. It has gradually shaded off towards *veris*, the stalked umbels growing more and more pronounced, and the colour deepening, till it is now (end of April) nearer the latter parent in appearance. The Rev. R. P. Murray has shown me fresh specimens of natural garden hybrids of *P. vulgaris* × *elatior* and *P. veris* × *elatior*, which are just like the wild hybrids from Saffron Walden. In the second case the fertilisation must have been due to insects, as *P. veris* grows only at some little distance. In 1887 I found *P. vulgaris* × *elatior* in a wood where no *vulgaris* was to be seen, and its pollen must have been conveyed a long way. — Edward S. Marshall.

West Cornish Plants.—In a short visit to Helston and Lizard Town, last October, I met with the following plants, not recorded for the vice-county by Watson:—*Hieracium vulgatum* Fr. (seg.); near Helston. *Carex Œderi* auct.; moor near Ruan Minor. *Polygonum minus* Huds.; queried "1 or 2 Cornwall?" occurs very sparingly on the green at Lizard Town. *P. maculatum* Dyer and Trimen, only noted as from Scilly, appears to be not uncommon in cultivated ground about Lizard Town and Ruan Minor. A curious form of *Hieracium umbellatum* L., with broad, entire leaves, occurs in woods near Helston (I also saw the type near Ruan Minor). In moist spots on the heaths, in several places, a very small *Erythræa* was gathered, which Prof. Wittrock names "*E. centaurium* Pers., forma *nana contracta*." It differs considerably in habit from the dry-soil var. *capitata* Koch. *Solidago Virgaurea* L., c. *cambrica* (Huds.) is well-marked on the cliffs towards Kynance, as is a very dwarf state of *Centaurea nigra* L., b. *decipiens* (Thuill.). — Edward S. Marshall.

Hypericum linariifolium Vahl. in Caernarvonshire. — The Rev. W. Hunt Painter has sent to me specimens of this plant found by him in July, 1888, with "*H. pulchrum*, on a rock bank at the angle of the road to Boduan from Pwllheli, which is one mile west of the latter place." This is an interesting discovery, as the plant was supposed to be confined to Devon and Cornwall and Jersey. A specimen is placed in the herbarium of the British Museum, South Kensington.—C. C. Babington.

Caithness Botany. — At p. 152 Mr. Britten notices a misquotation under *Melampyrum sylvaticum* in the list of Caithness plants which Mr. Grant and I are contributing to the 'Scottish Naturalist.' Curiously enough, there is a misprint in Mr. Britten's quotation, where "nr." should be "Mr." I am glad to have the opportunity of correcting the note, as I should like to mention some Caithness plants about which we want further information. They are—*Thalictrum flavum* (perhaps *elatum* was meant), *Malva moschata*, *Rubus cæsius*?, *Dryas octopetala*, *Saxifraga oppositifolia*, *Sedum anglicum*, *Epilobium hirsutum*, *Menyanthes trifoliata*, *Luzula spicata*, *Carex teretiuscula*, *Athyrium alpestre*, *Isoetes lacustris*, &c. I hope at some future time that we shall be enabled to publish a critical revision, with remarks and additions.—Arthur Bennett.

Norfolk Plants.—A *Crepis* which I gathered last summer near Norwich, and which I felt doubtful about, as all my specimens were rather immature, the Rev. W. R. Linton detected as being *C. taraxacifolia* Thuill. In consequence of this suggestion, which is no doubt correct, it dawned upon me that some plants I had gathered the previous year at Acle, and had considered to be *C. biennis* L., not giving them a careful examination at the time, were also *C. taraxacifolia*. Both these stations are in Norfolk East. While working out the Norfolk specimens, I discovered that a plant which had lain dormant in my herbarium, labelled *Crepis biennis* L., and which had been gathered years ago by Mr. E. G. Varenne at Aldham, in Essex, was also *C. taraxacifolia*, one or two of the heads being well developed enough to make this quite certain. Thus *C. taraxacifolia* proves to be a North Essex plant; it is already recorded by Mr. Varenne for South Essex; and the record of *C. biennis* for N. Essex is not affected, as it rests on other authority. I have also gathered *C. biennis* in E. Norfolk, in the parish of Thorpe, near Norwich, and I believe this is a record which has not yet been published for the east division of the county. In the same parish, by the river-side, grow several bushes of *Salix undulata* Ehrh., to which Mr. James Groves first called my attention in August, 1884. I have since gathered fruit on two or three occasions, and proved Mr. Groves' surmise to be right. *Sparganium minimum* Fr. appears to have been gathered fifty years ago in Wretton Fen, near Stoke Ferry; this is in Norfolk *West;* the specimen is in the Salmon Herbarium at Norwich, collected by Mr. Salmon himself.—E. F. Linton.

## *NOTICES OF BOOKS.*

*The Moss Flora of Fife and Kinross.* By Charles Howie. Cupar, 1889. 8vo. *5s.*

This little book consists of some 116 pages of large type, wherein 295 species—about one half of the whole British Moss-flora—are enumerated as occurring in the two counties of Fife and Kinross, some of the rarer species being found at Tents Moors. For purposes of field-work the book will doubtless prove very useful from its conveniently small size, its simple descriptions, and indications as to where the plants may be found. But whatever its good points may be, we regret to say that they are outweighed by the innumerable misprints. The production of County Floras is a thing that deserves to be encouraged by all means: but such careless, hasty work as this cannot be allowed to pass without protest. We cannot believe that the proof-sheets have ever been revised. Few, if any pages, are entirely free from errors; in fact, an average of three or four may be expected. But two prominent pages far exceed this average:—(1) In the "Contents of the Genera," of which there are 87, no less than 12 are mis-spelt (*e.g.*, under the letter C we find "Campothecium," "Catiscopium," "Climaceum," "Cynodotium," and "Cryphæ"); (2) in the explanation of the "abbreviations" we are told that "Bla." stands for "Bland," "Dill." for "Dillenens," "Horn." for "Hornsch" (who occurs again below as "Hornschach"), "Lim." for "Limberg," "Linn." for "Linneas," "P. & B." for "Paliot de Beauvois" (while in line 1 "Beau." stands for "Beauvois," and on p. 61 we find "P. Bean"), "Sch." for "Schwaregricher" (who on p. 45 figures as "Schwaegrechin"), "Schl." for "Schleich," "Wach." for "Wachlenberg," "W." for "Web." A. G.

NEW BOOKS. — H. BAILLON, 'Traité de Botanique Médicale Cryptogamique' (Paris, Doin: 8vo, pp. 376: 370 cuts). — F. BALSAMO, 'Homonymiæ Algarum in plantis animalibusque tentamen' (Naples: 8vo, pp. 24). — H. DE VRIES, 'Intracellulare Pangenesis' (Jena, Fischer: 8vo, pp. vi. 212). — R. HARTIG, 'Lerbuch der Baumkrankheiten' (Berlin, Springer: 8vo, pp. ix. 291: 137 cuts). —G. S. BOULGER, 'The Uses of Plants' (London, Roper & Drowley: 8vo, pp. 224: 6*s*.).—J. GRISARD & M. VANDEN-BERGHE, 'Les Palmiers Utiles et leurs Alliés' (Paris, Rothschild: 4to, pp. 231: tt. 16, 120 cuts). — L. TRABUT, 'Étude sur l'Halfa (Stipa tenacissima)' (Alger, Jourdain: 8vo, pp. vii. 91, tt. 22). — A. VIALLANES & J. D'ARBAUMONT, 'Flore de la Côte d'Or' (Dijon: 12mo, pp. lxx. 525). — M. RECLU, 'Manuel de l'Herboriste' (Paris, Baillière: 8vo, pp. 160, 52 cuts). — J. H. MAIDEN, 'The Useful Native Plants of Australia' (London, Trübner: 8vo, pp. xii. 696). — J. BEL, 'Les Champignons supérieures du Tarn' (Paris, Baillière: 8vo, pp. 199: 32 col. plates). — A. GEHEEB, 'Neue Beiträge zur Mossflora von Neu-Guinea' (Cassel, Fischer: 4to, pp. 12, tt. 8).

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## ARTICLES IN JOURNALS.

*Ann. Sciences Naturelles* (7th Series, viii. Suppl.: March). — P. van Tieghem & H. Douliot, 'Recherches comparatives sur l'origine des membres endogènes dans les plantes vasculaires.'

*Bot. Centralblatt.* (Nos. 16, 17). — E. Dennert, 'Anatomie und Chemie des Blumenblatts.' — R. Hesse, 'Zur Entwickelungsgeschichte der Tuberaceen & Elaphomyceten.' — (Nos. 18–20). P. Dietel, 'Ueber Rostpilze, deren Teleutosporen kurz nach ihrer Reife keimen.' — (Nos. 18, 19). O. Loew & T. Bokorny, 'Ueber das Verhalten von Pflanzenzellen zu stark verdünnter alkalischer Silberlösung.' — (No. 18). R. Hegler, 'Thallin, ein neues Holzreagens.'—(Nos. 21, 22). C. Ochsenius, 'Ueber Maqui.'

*Bot. Gazette* (April).—F. Renauld & J. Cardot, 'New Mosses of N. America' (3 plates).—S. Coulter, 'Histology of leaf of *Taxodium*.' — B. D. Halsted, 'A modification of the versatile anther.' — T. Meehan, 'Winter leaves of *Corydalis glauca* and *C. flavula*.'

*Bot. Notiser* (heft. 3).—A. N. Lundström, 'Om regruppfångande växter.' — K. Johansson, 'Bidrag till Gotlands växtgeografi.' — W. Bülow, 'Bidrag till Skånes svampflora.' — J. Forsell, 'Anteckningar öfver Rhinanthacéernas anatomi.'

*Bot. Zeitung* (Ap. 12, 26; May 3). — J. Wortmann, 'Beiträge zur Physiologie der Wachsthums.' — (Ap. 19; May 10). H. de Vries, 'Ueber die Permeabilität der Protoplaste für Harnstoff.'

*Bull. Soc. Bot. France*, xxxvi., pt. i. (May 1). — L. du Sablon, 'Observations sur la tige des Fougères.'—A. Chabert, 'Note sur la Flore d'Algérie' (*Pæonia algeriensis*, *Alyssum Djurdjuræ*, *Pimpinella Battandieri*, *P. Djurdjuræ*, *Scabiosa Djurjuræ*, *Artemisia Kabylica*, *Daphne Kabylica*, spp. nn.). — B. Martin, 'Les *Iberis* de la Flore du Gard.'—E. Blanc, 'Notes récuillies dans le sud de la Tunisie.'— L. Trabut, 'De Djidjelli aux Babors.'

*Bull. Torrey Bot. Club* (April). — J. Macoun, ‘Contributions to Bryology of Canada.’—E. A. Schultze, ‘Descriptive List of Staten Island Diatomaceæ’ (1 plate).—J. W. Eckfeldt, ‘New N. American Lichens.’—E. G. Britton, ‘Contribution to N. American Bryology’ (1 plate). — (May). N. L. Britton, ‘Note on N. American species of *Tissa*’ (= *Lepigonum*).—B. D. Halsted, ‘Germination of Pollen.’ —Id., ‘Observations on Pollen Measurements.’

*Gardeners' Chronicle* (Ap. 20). — R. A. Rolfe, ‘List of Garden Orchids’ *Broughtonia, Epicattleya, Cattleya*). — (Ap. 27 & May 4). M. T. Masters, ‘Skimmias’ (figs. 89–91, 94). — (Ap. 27). N. E. Brown, ‘*Bambusa tessellata* and *B. Veitchii*.’—(May 11). M. Foster, ‘*Iris caucasica* and *I. orchioides*.’ — (May 18). Memoir of H. G. Reichenbach (portrait). — (May 25). *Muscari Maweanum* Hort. Leichtlin, sp. n.

*Journal de Botanique* (Ap. 16). — P. Maury, Énumération des plantes du Haut-Orénoque’ (*Selaginella orinocensis, Polypodium aturense*, spp. nn.). — E. Mer, ‘Influence de l'exposition sur l'accroissement de l'écorce des Sapins.’—E. Roze, ‘La Flore d'Étampes en 1747.’ — (May 1). M. Granel, ‘Recherches sur l'origine des suçoirs des Phanérogames parasites’ (1 plate). — P. Hariot, ‘Liste des Algues recuillies à l'Ile Miquelon’ (*Delamarea*, gen. nov.).— P. Maury, ‘Plantes du Haut-Orénoque’ (*Andropogon aturensis, Paspalium Chaffanjonii, Eragrostis incana*, spp. nn.). — (May 16). N. Patouillard, ‘Fragments Mycologiques.’ — C. Sauvageau, ‘Sur la racine des plantes aquatiques’ (*Zostera, Cymodocea, Posidonia*).

*Journ. Linn. Soc.* (*London*) xxvi., No. 173 (Ap. 30). — F. B. Forbes & W. B. Hemsley, Flora of China (*Stylideæ—Loganiaceæ: Adenophora capillaris, A. stenophylla, A. pubescens, A. remotidens, A. rupincola, Vaccinium Henryi, V. urceolatum, Pieris? Swinhoei, Rhododendron aucubæfolium, R. Augustinii, R. auriculatum, R. concinnum, R. Faberii, R. Hanceanum, R. hypoglaucum, R. pittosporæfolium, R. Westlandii, Lysimachia auriculata, L. capillipes, L. circæoides, L. congestiflora, L. crispidens* (t. 1), *L. ophelioides, L. paludicola, L. parvifolia* Franchet, *L. pterantha* (t. 2), *L. rubiginosa, L. simulans, L. stenosepala, Myrsine Playfairii, Embelia oblongifolia, Ardisia affinis, A. caudata, A. Faberii, A. Fordii, A. Henryi, A. triflora, Sarcosperma? pedunculata, Diospyros arcuata, D. rhombifolia, D. sinensis, Halesia? Fortunei, Jasminum inornatum, J. pachyphyllum, J. sinense, J. urophyllum, Fraxinus bracteata, Osmanthus Fordii, Ligustrum deciduum, L. Henryi, L. stronglophyllum, Anodendron? Benthamianum, Pycnostelma lateriflorum, Holostemma sinense, Cynanchum affine, C. Fordii, C. linearifolium, C. stenophyllum, C. verticillatum, Pentatropis officinalis, Henrya* (gen. nov. *Cynanchearum*) *Augustiniana, Marsdenia sinensis, Dregea sinensis, Buddleia albiflora, B. variabilis*, spp. nn., all of Hemsley).

*Notarisia* (April).—G. B. De Toni & D. Levi-Morenos, ‘Guiseppe Meneghini’ (30 July, 1811–28 Jan. 1889: portrait).

*Nuovo Giornale Bot. Italiano* (Ap. 15).—C. Massalongo, ‘Nuovi Miceti dell' agro Veronese.’—A. Piccone, ‘Alghe della crociera del

'Corsaro' alle Azzorre.' — H. Ross, 'Tessuto assimilatore e periderma' (1 plate). — L. Micheletti, 'Index in Lichenes Italiæ.'— U. Martelli, 'Caso teratologico nella *Magnolia anonæfolia*' (1 plate). L. Macchiati, '*Synedrella pulchella* var. *abnormis*.' — G. Cicioni, '*Myosotis intermedia* & *Polygonum dumetorum*.'—A. Goiran, 'Alcune notizie sulla Flora Veronese' (*Potentilla hæmatosticta*, sp. n.).— G. Arcangeli, 'Sulla fruzione trofilegica delle foglie.'—L. Macchiati, 'Le Diatomacee della fortezza di Castelfranco.' — G. Arcangeli, 'Sulla struttura dei semi delle *Victoria regia*.'—*Riccia atromarginata* Levier, sp. n. — U. Martelli, 'Sul *Polyporus gelsorum* Fr.' — L. Celotti, 'Contribuzione alla Micologia Romana.' — C. Avetta, 'Contribuzioni alla Flora dello Scioa' (*Eriosema Scioanum*, *Werneria Antinorii*, *Vernonia Antinoriana*, spp. nn.).—R. Pirotta, 'Osservazioni sopra alcune funghi' (*Pseudolizonia*, gen. nov.). — A. Terraciano, 'Le Viole Italiane spettante alle sezione *Melanium*.'

*Oesterr. Bot. Zeitschrift* (May). — M. Willkomm, 'Nachtrag zu meinen Mittheilungen über einige kritische Labiaten der Spanisch-Balearischen Flora.'—W. Voss, 'Carl Deschmann' (3 Jan. 1821–11 March, 1889).—J. Freyn, 'Ueber einige kritische *Arabis*-Arten.' — J. A. Bäumler, 'Mycologische Notizen.' — D. Hirc, 'Nachträge zur Flora von Buccari.' — E. v. Halácsy, '*Viola Eichenfeldii* (*adriatica* × *scotophylla*).' — H. Braun, 'Systematische Uebersicht und Verbreitung der Gattung *Thymus* in Nieder-Oesterreich.' — B. Blocki, '*Rosa Ciesielskii*, sp. n.'—'Chronik der Pflanzenwanderung. *Galinsoga parviflora*.'

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## *LINNEAN SOCIETY OF LONDON.*

*April* 18, 1889. — Mr. Carruthers, F.R.S., President, in the chair.—The Rev. R. Collie was admitted a Fellow of the Society, and the following were elected: Messrs. P. Griffon, T. W. Shore, and R. W. Scully.—Mr. J. R. Jackson, Curator of the Museum, Kew Gardens, exhibited specimens illustrating the mode of collecting at Ichang, China, the varnish obtained from *Rhus vernicifera*, so largely used by the Chinese and Japanese for lacquering. —On behalf of Mr. Henry Hutton, of Kimberley, some photographs were exhibited, showing the singular parasitic growth of *Cuscuta appendiculata* on *Nicotiana glauca*.—Dr. Masters gave a summary of a paper "On the Comparative Morphology and Life-history of the *Coniferæ*," a review of the general morphology of the order, based upon the comparative examination of living specimens in various stages of development. These observations, made in various public and private "pineta," supplemented by an examination of herbarium specimens, demonstrated the utility of gardens in aid of botanical research. The mode of germination, the polymorphic foliage, its isolation or "concrescence," its internal structure, the arrangements of the buds, the direction and movements of the shoots, were all discussed. In reference to the male and female flowers, the author described their true nature, tracing them from their simplest to their most complex, or most highly differentiated, condition, and showed that, so far as known, the histological structure and development were essentially the same throughout the order. Various special forms, such as the needles of *Pinus*, the phylloid shoots of *Sciadopitys*, and the seed-scales of *Abietineæ*, were described, and their significance pointed out. The phenomenon of enation, with the correlative inversion of the fibro-vascular bundles in such outgrowth, was considered in relation to the lights it throws upon certain contested points in the morphology of the order. The chief teratological appearances noted in the order were detailed, and the significance discussed. The various modifications were shown to be purely hereditary or partly adaptive, and dependent on permanent or independent arrest, excess, or perversion of growth and development, and to various correlative changes. Lastly, the polymorphic forms of the so-called genus *Retinospora* suggested that in studying them we might be watching the development and fixation of new specific types.

*May* 2.—Mr. C. B. Clarke, M.A., F.R.S., in the chair.—Messrs. H. B. Hewetson (of Leeds), M. B. Slater, and T. W. Shore were admitted Fellows of the Societies; and Messrs. C. Hedley, T. W. Girdlestone, and E. E. Prince were elected. Prof. W. Pfeffer, of the University of Tubingen, was elected a Foreign Member.—With reference to a recent exhibition by Mr. D. Morris, of leaves of different species or varieties of plants included under *Erythroxylon Coca* Lamarck, Mr. Thomas Christy made some remarks on the leaves of a variety from Japan. These he described as brittle and thin, with hardly any trace of cocaine, though yielding 8 per cent. of crystallizable substance. The thicker leaves of the Peruvian plant yielded more cocaine, though at first rejected on account of their more glutinous nature — Mr. John Carruthers read a short paper "On the cystocarps, hitherto undescribed, of a well-known seaweed, *Rhodymenia palmata.*" — The second part of a monograph of the *Thelephoreæ* was communicated by Mr. G. Massee. — Mr. Mitten contributed a paper "On all the known species of *Musci* and *Hepaticæ* recorded from Japan." An interesting discussion followed, on the character of the Japanese Flora.

*May* 24, 1889.—*Anniversary Meeting.*—Mr. Carruthers, F.R.S., President, in the chair.— The following were admitted as Fellows: The Rt. Hon. the Earl of Ducie, P.C., F.R.S., Messrs. W. J. Hindmarsh, C. M. Peal, R. W. Scully, T. W. Girdlestone, and William Kirkby.— A portrait of John Jacob Dillenius (1687–1747), the first Professor of Botany at Oxford, copied from the original picture at Oxford, was presented to the Society by the President, who gave a brief outline of his career and of his personal acquaintance with Linnæus.— The Treasurer having made his annual statement of accounts, and the Librarian's and other Reports having been read, a ballot took place for the election of Officers and Council for the ensuing year. The President, Treasurer, and Secretaries were re-elected, and the changes recommended in the Council were adopted, Messrs. Baker, A. W. Bennett, Braithwaite, Murray, and Scott replacing the retiring members.—The President then delivered his Annual Address, in which, after reviewing the progress and prosperity of the Society during the past year, and noticing with regret the loss which the Society had sustained by the death of several of its Fellows, he gave an elaborate and interesting history of the existing portraits of Linnæus, a great many of which were in the possession of the Society, and would now be supplemented by others which he had the pleasure to present. The result of his enquiry showed that there are at least seven original and authentic portraits of Linnæus in existence; that the engravings most widely known are from the originals by Inlander and Roslin, and that these gave the most faithful representation of the features of the great naturalist.—A unanimous vote of thanks to the President for his Address, coupled with a request that it might be printed, having been passed, the ceremony of awarding the Society's gold medal took place. This medal, having on the obverse a fine bust of Linnæus, and on the reverse the arms of the Society, below which is engraved the name of the recipient, was founded last year in commemoration of the Society's centenary anniversary, and is bestowed upon a botanist and zoologist alternately, for distinguished services to biological science. This year it was awarded to the eminent botanist, Prof. Alphonse DeCandolle, and in his unavoidable absence was handed to his grandson, M. Austin DeCandolle, who attended on his behalf to receive it. Addressing his representative, the President said:—"Monsieur De Candolle,—It is a great satisfaction to me to place in your hands, for transmission to your distinguished grandfather, the Linnean medal in recognition of his many important services to botanical science. These services have been so great, and are so universally acknowledged, that it is unnecessary for me to do more than to refer to them. His many systematic monographs justify his being awarded any honour that botanists can confer. His philosophical treatment of the geographical distribution of plants has greatly advanced this department of Science, and his successful codification of the laws of botanical nomenclature has been of the greatest practical service to systematists. But botanists will always look with gratitude to Alphonse DeCandolle for the successful carrying on of the gigantic enterprise inaugurated by his father when he undertook the publication of the 'Prodromus Systematis Naturalis Regni Vegetabilis.' By his own work, by securing the aid of accomplished collaborators, and perhaps not least by the plodding toil of reading the proof-sheets of volume after volume of dry systematic descriptions during the thirty-two years in which he took charge of the 'Prodromus,' he has laid science under a debt which cannot be estimated. The work as now completed contains descriptions of all the Dicotyledonous Phanerogams, and of Gymnosperms which were known when the different volumes were published, amounting to nearly 60,000 species. And though the 'Prodromus' is discontinued, the debt to M. De Candolle yearly increases by reason of the important Monographs forming the 'Suites au Prodromus' issuing under his editorial care.

By his numerous labours Alphonse DeCandolle has added lustre to a name that had already obtained a first place amongst botanists. His son, Casimir, by his scientific researches maintains the credit of that name; and now in handing this medal to you, the representative of the fourth generation, may I venture to hope that this imperfect record of the services rendered to science by Alphonse DeCandolle may help you to realize the honour of the name you inherit, and encourage you by similar true and honest labour to transmit it with added renown to posterity." The presentation having been suitably acknowledged by Dr. Marcet, F.R.S., F.C.S., a countryman and relative of the recipient, the proceedings terminated with a vote of thanks to the President and Officers.

## *BOTANICAL NEWS.*

We understand that the whole of the vast collections amassed by the late Dr. J. T. Boswell has now been disposed of privately. We have already recorded the purchase by Mr. F. J. Hanbury of the British Herbarium, which is now being arranged by him in a house (63, The Common, Clapton) specially taken for its accommodation; Mr. Hanbury has also acquired a few select European sets, being those previously used and referred to for comparison by the late owner in the perfection of 'English Botany.' With the exception of a small portion taken by Mr. Charles Bailey, the whole bulk of the foreign herbarium proper, which mainly comprises the floras of the north temperate zone of both hemispheres, has been purchased from Mrs. Boswell by Mr. Cosmo Melvill, who is building additional rooms at his house at Prestwich, near Manchester, for its reception.

We are glad to note that the Botanic Garden at Edinburgh is now open to the public on Sundays. By a provision of the Universities (Scotland) Bill, the Botanic Garden is now under control of the Commissioner of Works, and in the same position as the Arboretum, which has been open on Sundays for some years. The two practically form one garden, under the care of Prof. Bayley Balfour, who has taken an active part in bringing about the new arrangement, which came into operation on the 7th of April last. A full account of the action taken and of the subsequent discussion, with two important articles from the 'Scotsman' on the subject, will be found in the last number of the 'Sunday Review,' which, by the way, bears date "April 31st!"

We much regret to announce the death of Prof. H. Reichenbach, which took place at Hamburg on May 6th. We hope to give a sketch of his life in an early number.

4

# HEINRICH GUSTAV REICHENBACH.

(1823-1889.)

Once more we have to regret the loss of a leader in our science, whose place it will be difficult to fill. There are few, if any, who have so thoroughly monopolised a special group of plants as the late Professor Reichenbach. There were, indeed, botanists in England and elsewhere who studied and named Orchids, and whose knowledge of certain genera may have been equal or even superior to that of the Hamburg Professor; but none came within appreciable distance of his grasp of the whole Order, or in the extent and variety of the material at their disposal. His knowledge was as unique as is the means by which he has succeeded in rendering his material temporarily, if not permanently, useless to those who should continue his work; the value of his investigations of a difficult tribe of plants will outlast the provisions by which he has for the time deprived his successors of the full benefit which might have been derived from them. 4

1824

Heinrich Gustav Reichenbach was born at Leipzig on Jan. 3rd, 1823. He was the son of H. G. L. Reichenbach, author of the classical 'Icones Floræ Germanicæ' and other important works, who died in 1879 at the advanced age of eighty-six. It was in connection with the above-named work that the younger Reichenbach first displayed his botanical knowledge and critical acumen. The volume devoted to the Orchids, which appeared in 1851, was entirely from his pen, and was, as he tells us in the preface, the result of ten years' work; for this and the succeeding volumes he also prepared the drawings. From this time he devoted himself, not exclusively, indeed, but for the greater part of his life, to the *Orchidaceæ*. From 1865 until within two days of his death, his contributions towards the knowledge of this Order appeared almost weekly in the 'Gardeners' Chronicle,' in which paper for May 18th is a portrait and memoir. Sixty-nine papers stand under his name in the Royal Society's 'Catalogue of Scientific Papers,' extending to 1873; and he monographed the Order for Seemann's 'Flora Vitiensis' and 'Botany of the 'Herald.'' In 1854 Reichenbach began 'Xenia Orchidacea,' which has since appeared in fascicles at uncertain intervals; and he described the *Orchidaceæ* in Mr. Saunders's 'Refugium Botanicum' (1869–72). He also contributed the scientific descriptions to the magnificent serial publication named in his honour, 'Reichenbachia,' which began in 1816, and is still in progress. His principal work, however, and the nearest approach to anything like a *resumé* of the whole Order, is to be found in the sixth volume of Walpers' 'Annales' (1861), nearly 800 pages of which are devoted to the bringing together of the species described in periodicals and elsewhere during 1851–5, with the addition of many novelties hitherto undescribed.

His literary undertakings, although, as we have seen, by no means inconsiderable, formed, however, but a part of Reichenbach's life-work. His official duties as Professor and Director of the Botanic Gardens at Hamburg, to which posts he was appointed in 1863, occupied much of his time; but more was devoted to the correspondence which he carried on with almost every grower of orchids, whether professional or amateur. He was universally consulted on all matters relating to his favourite Order; and it is to his correspondence that his herbarium owes its value, containing, as it does, almost every specimen that he had ever had sent him, with sketches showing the structure, and copious notes; the whole being arranged with scrupulous care and neatness.

When not engaged in professional work, Reichenbach devoted his time to travelling to the different European herbaria, always with a view to increasing his knowledge concerning Orchids. To us in this country he has for more than twenty years been a familiar figure—coming over for a stay often of many weeks, and settling down at Kew, where at one time he thought of permanently residing, so as to be in close proximity to the Herbarium, which contains Lindley's type-collection of Orchids. During these periods, he paid visits to the British Museum, and to the principal collections of Orchids, of both professional and private growers, and thus became personally known to most of them. Short and broad in figure,—on his last visit to England, two years ago, he was much thinner,—with aquiline nose, and sharp critical gaze sometimes turned upon his listener with startling suddenness, he was a man not easily to be forgotten. His conversation was often sarcastic, but at other times kindly and amusing; he had a way of talking to himself at his work which was sometimes a little startling, especially when accompanied by the loud "Ho! ho!" with which he heralded some interesting discovery; and which I remember to have heard echoing through the silence of the long room in the Kew Herbarium. His knowledge of English was remarkable, and his employment of it was more so; the last time he was with us, he gave me an account of his interview with a cabman, in the course of which he expressed much satisfaction at his acquirement of "slang English." His descriptions to the 'Gardeners' Chronicle' are often couched in quaint phraseology, and thus differ very materially from the more dignified manner in which men of science are wont to express their ideas. His fondness in conversation for small jokes and eccentric forms of expression was represented in his literary contributions. Who but he, for example, would have seized upon a misprint such as "lamina longiformis" for a comment such as the following:—"'Forma' means the circumference of a body, and 'longus' one of the dimensions. Those words cannot be combined, and the expression reminds me of a *Sesia*, a butterfly, which was called 'rubriformis.' Another lepidopterologist wished to improve the name, and named the wasp-like creature in compliment to its discoverer, 'Schmidtiiformis,' although Mr. Schmidt was quite a normal gentleman."*

His letters were equally odd, and extremely difficult to read, often containing little expressions of annoyance or dissatisfaction with one person or another which it would not be desirable to perpetuate.

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* Gard. Chron. (1888) iii. 395.

Mr. Carruthers kindly allows me to select the following, which is not open to this objection, as a specimen of his quaint style:—

"565.*

"My dear Carruthers,

"What pity I did not catch you though twice at Brit. Mus. I hope to end my Lindleyan work next easter. Then my wings will grow. Excuse delay of our botanic interferences. Matter is, this year nearly runs away, viz.

"4 weeks in bed, conseq. of hunting Isoëtes in a cool lake for 3 hours, Nov. 7.

"4 weeks Florence, Rome, Naples, Pisa.

"4 weeks England.

"4 weeks Vienna, Hungary, Styria, Istria, Lomb.-Venetia, Switzerland, Alsace.

"What is then left for extra official work?

"I write to day this.

"I found the noted autographs, some of which appear very valuable, in Switzerland. Can you let me have an offer of £s for it? I think you British Mus. people collect such things. The letters, no doubt, appear superior to me, the most the two on language from W. v. Humboldt.

"The professor, an old friend of mine, has no interest in possessing those things & likes much better £. You are such a kind-hearted man, that I hope for your assistance, I would regard a favour to me.

"I hope you'll not give cheese to eat to the plants! †

"Best remembrances to your Triad.

"Very faithfully yours,
"H. G. Reichenbach.

"Hamburg,
"Nov. 11, 74."

Genial and friendly in his private relations, always willing and anxious to oblige, and indeed at the service of any who needed his help, it must be admitted that Reichenbach viewed with anything but favour the intrusion of others into what he regarded as his own peculiar preserves; and other workers at *Orchidaceæ* received no encouragement from him. This jealousy—for it can hardly be called by any other name—led him to feel very acutely any slight, real or apparent, which was put upon him, and probably was the cause of the unfortunate bequest which will be further discussed later on. He never made any secret of his dissatisfaction at the want of recognition of his labours shown in Mr. Bentham's monograph of the *Orchidaceæ* in the 'Genera Plantarum.' This want is, indeed, manifest enough; and it is only fair to point out that elsewhere Mr. Bentham paid a very high tribute to Reichenbach's work, and implied that he had been asked to assist in the monograph for the 'Genera.' It may be well to reprint this testimony of the great systematist:—

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* His letters each year were always numbered.

† This refers to the experiments on *Drosera*, then in progress.

"I now come to speak of the great Orchidologist of the present day, who took up the pen and pencil as they fell from the hands of Lindley, and who, having since devoted himself almost exclusively to the study of the order, is now the only authority for the determination of species, especially for those in cultivation. I allude to the younger Reichenbach. No one has a richer collection of specimens than his, no one has more opportunities of examining the flowers in a living state, no one is more thoroughly acquainted with their peculiarities, or has better means of giving us a new genera and species of *Orchidaceæ;* but unfortunately no such a one has as yet appeared, and I cannot learn that any one is in preparation. In his numerous publications he has proposed, modified, combined, or suppressed a large number of genera; but he has nowhere as yet given any synopsis of contrasted characters so as to give a clue to the principles upon which he would limit the tribes and genera he would adopt; so that whilst cordially agreeing in many of the changes he proposes, there are others for which I have failed to comprehend his reasons. He appears, for instance, generally to rely absolutely on floral characters, to the exclusion of vegetative ones, more on the absolute number than on the form and arrangement of the pollen-masses, and often to attach much more importance to the calli, lobes, and appendages of the labellum and column than I should do in respect of genera. I trust, however, he may yet give us a clue to his systematic views in time for use in the new part of our 'Genera Plantarum' now in preparation." *

In spite of this, however, Reichenbach felt aggrieved, as letters in my possession show: he had, indeed, projected a series of critical observations on Mr. Bentham's monograph for publication in this Journal, stipulating that he was not to be fettered in the expression of his opinions.

On his last visit to this country, in the autumn of 1887, it was evident that the vigour of Reichenbach's constitution had greatly diminished. He was thin, and, although his manner was as animated and his conversation as piquant as ever, there were not wanting indications of advancing age. But his work was arduous to the last, and his interest keen. One of his last letters was to Miss Woolward, who has been for some time engaged in figuring the various species of *Masdevallia* for a forthcoming monograph. This, by Miss Woolward's kind permission, I am enabled to print:—

"Dear Miss Woolward,

"You may introduce yourself as much you like & want no introduction, though I like to see some lines of Mr. C [arruthers].

"I have obtained the prints. Best thanks. I felt deeply interested in them.

"You are to be highly acknowledged for having used the honest system of elder print with linear circumscriptions and of hand-painting. We have such excellent models in the doing of the Hookers, that I do not understand the furor for chromo. Unluckily I am hors de combat those days as my bad health is once more acting on me.

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* Journ. Linn. Soc. xviii. 283 (181).

"I may write in some time more. A few remarks now—without consulting my herb., notes & sketches. I *cannot* now.

"My general impression is *quite acknowledgment*, & I am none of those base villains, who nowadays make friends of any fabricator of a book, to the great damage of public.

"I might be permitted to advice you to give some keen side-views of leaves to avoid general flatness.

"I am not sure whether the persp. of the $\frac{2}{3}$ view of flower of Masd. bella is quite correct. Ovary may be a trifle too long. fig. 2 & 3 excellent, 4 not sharp enough, hence not intellig. to a tyro.

"Masd. rosea—a rather narrow and dark fl. variety.

"M. Roezlii. I am afraid it is *not*. Can you not prevent print? It looks to my memory like Winniana. I'll write you as soon I can.

"I found no letterpress proof. I cannot hope its reaching the goodness of your work.

"I would *always* give the same details—top of column, front and side—transv. & top of leaf (keel). I would cancel fig. 5 of tovarensis. Much too small for having value.

"Please, accept my best thanks and heartly wishes. It is so rare to find in our days *earnest* work.

"Very truly yours,
"Hamburgh, March 2, 89. "H. G. Reichenbach.

"I rose just now first time."

The news of his death at Hamburg on the 6th of May came upon us as a surprise; the provisions of his will have not only astonished the scientific world, but have attracted the attention of those to whom the disposition of a herbarium has never before presented any feature of interest. Mr. Hewett Watson, it will be remembered, labouring under some temporary annoyance, threatened to make a funeral pyre of his collections; Reichenbach's disposition of his collections is, at any rate for the present, scarcely, if at all, less mischievous than this. The terms of his will are sufficiently explicit:—

"My herbarium and my botanical library, my instruments, collections of seeds, &c., accrue to the Imperial Hof Museum in Vienna, under the condition that the preserved Orchids and drawings of Orchids shall not be exhibited before twenty-five years from the date of my death have elapsed. Until this time my collections shall be preserved in sealed cases. In the event of the Vienna Institute declining to observe these conditions, the collection falls under the same conditions to the Botanical Gardens at Upsala. Should the last-mentioned Institute decline the legacy, then to the Grayean Herbarium in Harvard University, Cambridge, Mass. If declined by that Institute, then to the Jardin des Plantes, at Paris, but always under the same conditions, *viz.*, of being sealed up for twenty-five years, in order that the inevitable destruction of the costly collection, resulting from the present craze for Orchids, may be avoided."

The bequest, thus limited, has been accepted at Vienna, and thus, for twenty-five years at least—even if the plants at the end of that period are in a consultable condition—botanists are deprived of the use of this invaluable collection. The result of this provision must be to impair its value, while its usefulness will be reduced to the narrowest limits. The just appreciation of "types," which has been steadily gaining ground for many years, combined with the facilities for travelling, have rendered it quite usual for a monographer to visit the principal herbaria of Europe; and the gain to science has been immense. Nothing but the inspection of the actual specimens from which a species has been described, duly authenticated by the describer, can be considered as the final court of appeal; and nothing less than finality, whenever possible, will satisfy the conscientious monographer.

Our contemporary the 'Gardeners' Chronicle' seems to us hardly to appreciate the full effect of Prof. Reichenbach's action. The editor owes so much to Kew that he can hardly be blamed for paying repeated tribute to "the unrivalled sources of that institution," and it is certain that, not only in the Kew and British Museum Herbaria,—the former of especial value as containing Lindley's Orchid types,—but in all other large collections, the *Orchidaceæ* are duly represented. But to say that these "will go very far to nullify the perverseness of these testamentary dispositions," is to ignore the difficulty, and, indeed, fails altogether to recognise the serious nature of the case. So far as Prof. Reichenbach's types are found only in his own herbarium,—and we believe that this is very largely the case,—the botanical world will be deprived of them for a quarter of a century; and so far as these types are concerned, the herbaria of the whole world cannot in any way modify or "nullify" the injury caused to systematic botany by this action, so unworthy of Prof. Reichenbach.

At the same time, I confess that it is difficult to understand on what grounds it should have been assumed, as seems to have been the case, that the collection would come to England. The 'Saturday Review' of June 8th, in a curious article on "Professor Reichenbach's Will," says:—"It has been understood by all the universe . . . . that ever since Prof. Reichenbach left this land in 1863 [his] gigantic and priceless collections would be left to Kew. If he never declared the resolve, in private conversation he allowed it to be taken for granted." A more misleading statement it would be difficult to find. Prof. Reichenbach had, indeed, and never failed to express, the highest regard for Prof. Oliver, but he certainly never led us to suppose that his plants were to go to Kew, although I learn that in Germany such a destination was not considered unlikely.

Regrettable as the decision is on scientific grounds, it is equally so in the light in which it places the character of our great orchidologist. It is painful to feel that a career of usefulness and helpfulness should be terminated by an action which, so far as is possible, hinders the development of a branch of science which its perpetrator had spent his life in advancing.

JAMES BRITTEN.

# THE PINKS OF THE TRANSVAAL.

By F. N. Williams, F.L.S.

The three new species described in this paper are from Nelson's collection of Transvaal plants deposited in the Kew Herbarium, and are dated August, 1880. They have been compared side by side with all the Cape specimens of *Dianthus* in the Herbarium, and appear to be distinct. This country has been but little explored botanically; and, as Dr. Harvey wrote in the preface to the 'Flora Capensis,' "from what we know of the plants of Transvaal, especially of its mountains and high plateaux, this country promises to the botanist the richest harvest yet ungathered in South Africa." After examining the specimens from different collectors, I have thought it well to record the three other species which are found in the country. Like all the Cape species they come under the subgenus *Caryophyllastrum*.*

## Section Fimbriatum.

### Subsection *Schistostolon*.

1. D. Zeyheri Sond. (Fl. Capensis i. 124).—Hb. Kew. no. 5015, *Dr. Rehmann*. Between Elands River and Klippan.

2. **D. mecistocalyx**, n. sp.—Glaucous, 45–48 centim. Stems terete, branching from the middle in dichotomous cymes. Leaves elongate-linear, acuminate, radical 66–68 mm., patent, 7-nerved, sheath twice as long as broad, cauline 25 mm., adpressed, 9–11-nerved, sheath as long as broad. Flowers solitary, white. Bracts 4–6 obovate, lowest pair (of three) obovate-lanceolate, mucronate to $\frac{1}{3}$ length of calyx, adpressed. Calyx 36 mm., teeth lanceolate-linear, acuminate, 9-nerved, edges scabrous. Capsule ovoid.—No. 555, *W. Nelson*.

Hab. Apies River, Pretoria district.

Of Cape species nearest to *D. Zeyheri*, but the latter differs from it in having angular branches, the stems dividing near the top, in the lanceolate or oblong-lanceolate leaves, the narrow acuminate bracts, and shorter calyx. From *D. prostratus* it differs still more; and of extra-African species is perhaps most like the Persian *D. Tabrisianus*.

3. **D. moviensis**, n. sp.—Glaucous, 25 centim. Stems terete, dividing above into strict dichotomous branches. Leaves 15 mm., linear, acuminate, adpressed, 9–11-nerved, sheath twice as long as broad. Flowers solitary, loosely cymose, white. Bracts 6 obovate, lowest pair obovate lanceolate, mucronate to $\frac{1}{3}$ length of calyx, adpressed. Calyx-teeth lanceolate, acuminate, 9-nerved. Petals not contiguous, lamina obovate. Capsule ovoid. Seeds minutely tuberculate.—No. 334, *W. Nelson*.

Hab. Movi River.

*D. Zeyheri* differs from it in its angular branches, broader leaves, shorter leaf-sheath, narrow acuminate bracts, narrow calyx-teeth and longer fimbriæ. Of the Extra-African species it is perhaps most like the Armenian *D. floribundus*.

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* See Journ. of Bot. 1885, p. 342.

### Subsection *Gonaxostolon*.

4. D. micropetalus E. M. (Fl. Capensis i. 122).—Hb. Kew, no. 191, *W. Nelson*. Hebron, Vaal River.

## Section Caryophyllum.

### Subsection *Caryophylloides*.

5. D. crenatus Thb. (Fl. Capensis i. 123).—Hb. Kew ex hb. *Bolus* 1881, no. 5587. District round Pretoria. The herbarium specimen is labelled "*D. Zeyheri*," but on close examination it exactly tallies with the descriptions of Thunberg's plant.

### Subsection *Sylvestres*.

6. **D. Nelsoni**, n. sp. — Stems 46–52 centim., branched, angularly compressed. Leaves strict adpressed; lower 38–40 mm., linear, acute, 9-nerved, upper 21 mm., elongate-linear, acuminate, canaliculate, 7-nerved, sheath as long as broad, subfloral scariose, subulate. Flowers solitary, arranged in lax dichotomous cymes. Bracts 4 (sometimes 6), $\frac{1}{3}$ the length of the calyx, obovate, lowest pair oval-lanceolate. Calyx purple, teeth acuminate, 9-nerved, edges membranous. Petals not contiguous, white, lamina obovate, denticulate, = $\frac{1}{3}$ unguis.—No. 554. *W. Nelson*.

Hab. Near Wonderfontein.

Of South-African species nearest to the preceding, from which it differs in having multifloral stems with the white flowers arranged in lax cymes, leaves longer and elongate-linear, 7–9-nerved, bracts broader and mucronate, calyx-teeth with membranous edges, lamina obovate and much smaller, and its generally stricter habit.

It most resembles the Indian *D. cachemiricus*, which however differs from the Transvaal plant in the following points:—slightly-branched paucifloral stems, the disposition of the rose-coloured flowers, the lanceolate bracts reaching as far as the base of the 7-nerved calyx-teeth, and the lamina = $\frac{1}{2}$ unguis.

*D. mecistocalyx* is so named from its remarkably long calyx, *D. moviensis* from the locality recorded, and *D. Nelsoni* from the collector of the species.

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# PLANTS OF EASTERNESS AND ELGIN.

By G. Claridge Druce, M.A., F.L.S.

Last year's visit to Easterness was marked by a long spell of hot, sunny weather, which appeared to exert special influence in inducing hawkweeds and other composite plants to flower; the abundance of flowery Hieracia upon the Cairngorms being a noticeable feature in the flora of that interesting group of mountains. This year the opposite condition of climate prevailed, as I reached the Boat of Garten on the thirty-second consecutive wet day, while the low barometric registration was almost equalled by that of the thermometer. Cold windy weather, with clouded skies, driving rain and mist, causing, as might be expected, a malevolent influence upon vegetation, retarding or preventing the flowering of the hawkweeds, of which *vulgatum* was almost the only one in flower; the roses were in such a backward condition as to prevent naming them with any degree of precision, and the continued wet rendered the investigation of several marshes (which last year were accessible) almost impossible. Mountain work, too, was greatly impeded by the stormy weather, especially as we were so far from their base. With all these drawbacks, the number of additional records to those of last year could not be very numerous. In the following list of plants, such as are believed to be new to Top. Bot. ed. 2, are marked with an asterisk.

Around the Boat of Garten we gathered *Bromus racemosus* L., **Alopecurus mysuroides* Huds., and, scattered in many localities in cultivated ground, *Erysimum cheiranthoides* L. On dry banks near the railway grew *Reseda lutea* L., with *Anthyllis Vulneraria* L. and *Agropyron repens* Beauv., *var. *Vaillantium* Reichb. On the moorland were **Habenaria chlorantha* Bab., with **Thymus Chamædrys* Fries, *Plantago lanceolata* L. *var. *capitata* Presl, *Radiola Linoides* Roth., and a very narrow-leaved and dwarf form of *Vicia Cracca* L. In the adjoining marsh, with *Drosera obovata* Mert. et Koch, and *Malaxis paludosa* Sw., grew *Nitella opaca* Ag., *Epilobium palustre* L. *var. *lineare* (Krause) Haussk., **Potamogeton natans* L., *Galium palustre* L. *var. *Witheringii* (Sm.), **Myosotis cæspitosa* Schultz. (if that name be not antedated by *M. maritima* Fries in Fl. Hall. 1817), and **Eleocharis acicularis* Br.

Cairngorm was ascended on an unpromising day. On the long uninteresting ascent to Corrie Sneachda, *Pyrola rotundifolia* and *P. secunda* were gathered, as well as a specimen of *Cornus suecica*, which had the usual white bracts replaced by foliaceous ones. In the corrie a luxuriant variety of *Carex rigida* Good. was gathered, which does not come well under any of the named varieties of that rather protean plant. *Carex lagopina* Wahl. was more abundant than last year over its rather limited area. *C. approximata* Hoppe, in Cent.-exsic. 1800, is an earlier name, and one that must stand until it shall have been proved that Allioni's *C. bipartita* is identical, which the plate of that plant in Flor. Pedemont. (iii., p. 265, tab. 89, fig. 5) does not suggest. In Journ. Bot. 1888, p. 156, a valued correspondent states that this "involves the adoption of an ambiguous name, and so can hardly be pressed," as he sees "there is another *C. approximata* Hoppe, 1794, a variety of *C. ericetorum* Poll."; but this statement is not quite accurate. It was Allioni, in 1785, who gave the name *C. approximata* to the species (not a variety) previously described as *C. ericetorum* Poll., and as Allioni's name of *approximata* could not be adopted, it remained open to be used for any other species. Of course it is far better to avoid choosing these abortive names, but to discard all which have been so used would only create, instead of preventing, confusion. I may say that *C. approximata* was the name adopted by DeCandolle in the 'Synopsis,' 1806, Fl. Fr. Supp. 1815; by Gaudin in Agrost. Helv. 1811, and Fl. Helv. 1830; and by Tenore, Duby, and other authors. I suppose it was the doubt of its being a *published* name, or its having probably no description in the Exsic., that led Gay, in the Annales Sc. Nat. 1839, p. 177, to choose Wahlenberg's name. To this paper I may refer for a more complete synonymy of the plant in question.

On the cliffs, at over 3000 ft., we noticed *Lychnis diurna* Sibth., which, if recent examples be followed, should, I suppose, be called *L. dioica* L., since Miller raised the var. b. to a species—*L. alba*. The special object of my visit to this corrie was to examine a *Ranunculus*, the peculiar root-leaves of which attracted my attention last year; this we found in good condition, and it will be described later on. Shortly after, the rain came down with such persistence as to render the six miles' walk and fourteen miles' drive home most unpleasant.

A squally day was spent about Loch Mallachie and Spey Side. In the Loch, **Scirpus lacustris* L., accidentally unmarked last year, **Carex riparia* Curt., in poor condition, and which would be better for confirmation, was noticed in a pool in the vicinity. By the river occurred *Rosa involuta* Sm. *var. *Doniana* (Woods), *R. tomentosa* Sm., var. *scabriuscula* (Sm.), * var. *fœtida* (Bast.), *R. canina* L. *var. *dumalis* Dumort., also a form with glandular sepals, *var. *andegavensis* Dumort., *var. *verticillacantha* Baker, var. *decipiens* Baker, *var. *Watsoni* Baker, *var. *subcristata* Baker, *var. *glauca* (Vill.), *Ribes Grossularia* L., **Hieracium gothicum* Fries, **Polygala vulgaris* L., and *Poa nemoralis* L. in several forms, including the *var. *montana* Gaud. (*teste* Hackel), which is, I believe, new to Britain. In a marshy place near the Boat of Garten, a form of *Melampyrum pratense* L., which is very nearly allied to var. *ericetorum* of D. Oliver, the var. *montanum* in variable condition being the common moorland form.

Another day was occupied in walking through the comparatively recently planted fir-woods to Carr Bridge; these contained, however, little of interest, except in Fungi, *Agaricus muscarius* being in beautiful condition. In a marsh near Carr Bridge grew a small form of *Potamogeton polygonifolius* Pourr., with very narrow and small leaves. It is closely allied (*teste* Arthur Bennett) to the var. *tenuifolius* Fries; it fruited freely. Here, too, was seen *Deschampsia discolor* R. & S. in a new locality, and a form of *Carex pilulifera* 24 in. high. A small stream yielded *Chara fragilis* Desv., in that pretty small state which approaches *delicatula* A. Br. *Vaccinium uliginosum* L. occurs at the low elevation of 800 ft. By the river grew **Geranium pratense* L. *Meconopsis cambrica* Vig. was naturalised near the village.

A day above Rothiemurchus afforded **Orchis mascula* L., *Chrysanthemum Parthenium* Pers. (naturalised), *Rosa canina* L., var.

*arvatica* Baker, var. *tomentella* Baker. *Malva moschata* L. grew by Loch-an-Eilan in a naturalised rather than a native condition. Near Doune occurred **Trisetum pratense* Pers., var. *variegatum* Reichb. (*teste* Hackel). It is figured in Agrost. Germ., fig. 1696, sub *Avena*. I have not seen a British record before.

One of the few fine days was spent in Glen Ennich, and on Braeriach, the summit of which was sprinkled with freshly-fallen snow, which lay in great quantities in the corries, much to the detriment of botanising. However, the brilliancy of the day compensated one to a great extent, the view being extremely grand from Ben Wyvis to Ben Lawers—from Forres to Ben Nevis. Beneath, towards the Garachary Burn, the precipices are very steep, and but little broken, presenting mural cliffs very free from vegetation. In Glen Ennich we noticed *Alopecurus alpinus* Sm. and *Phleum alpinum* L. as low as 1900 ft., and traced them up to 3900 ft. A form of *Alopecurus alpinus* with a long lax spike occurred, but the awns were not long enough to place it under the var. *Watsoni*, a variety which scarcely deserves the name, as all intermediates may be found. *Poa pratensis* L. var. *cærulea* Sm. (*teste* Hackel) grew close to the shanty; it was a pretty plant, coming very near to the var. *humilis* Reichb. We gathered the parsley fern on the western side (a rare plant in the Cairngorms), with a form of *Polypodium alpestre*, and large plants of *Cerastium refractum* All. = *C. trigynum* Vill. as the glabrous, and occasionally as the hairy plant = *C. nivale* Don. Abundance of *C. alpinum* L. and also a variety of *C. arcticum* Lange occurred. *C. lanatum* Lamk. appears to be rare in the Cairngorms.

The northern side of Braeriach had abundance of *Arabis petræa* Lamk., both as the hairy (var. *hispida* DC.) and as the glabrous state. Both had small, glossy leaves, rather fleshy, and deeply cut, and very different from the Ben Laiogh plant. So far in cultivation these characters are maintained. The young shoots of the Ben Laiogh plant are covered with very long, shaggy hairs. A one-flowered form of *Ranunculus acris* L. occurred; it had hairy leaves and slanting rhizomes, and is probably *R. Boræanus* Jord. It is similar to a plant in Hb. Br. Mus. labelled *R. pumilus* Hartman [non Willd.]. *Montia fontana* L. as var. *major* All. = *M. rivularis* Gmel. was plentiful in streams in the Glen, where we noticed *Utricularia intermedia* Hayne as high as 1900 ft. In the west corrie, *Pinguicula vulgaris* L. *var. *alpicola* Reichb. was found. *Veronica humifusa* Dicks. grew at an elevation of 3800 ft. *Deschampsia cæspitosa* L. var. *montana* Reichb. Agrost. Germ. pl. 96, was also obtained.

A day was spent about the sea-coast at Culbin Sands, near Forres, in Elgin, Co. 95, but the rabbits had made such raids upon vegetation as to render it very barren work. *Lycopodium clavatum* L. grew on the sand dunes among *Pteris*. *Juncus balticus* Willd., *Plantago Coronopus* L. *var. *prostrata* Lange, an *Erythræa* (possibly *littoralis*, but rather suggestive of the maritime form of *Centaurium*), *Sagina nodosa* Fenzl, *S. maritima* Don, **Agropyron acutum* Gr. & Godr., *Agrostis alba* L. *var. *maritima* Meyer, *A. canina* L. var.

*mutica* Gaud., *Festuca rubra* L. *var. *arenaria* Hackel, *teste* Hackel (in his monograph Prof. Hackel gives var. *lanuginosa* of Mert. & Koch, Deut. Fl. as a synonym), **Allium oleraceum* L., **Scirpus Tabernæmontani* Gmel. were the most interesting plants noticed. By Forres the corn-fields were full of *Papaver dubium* L., *Centaurea Cyanus* L., and *Spergularia sativa* Bœngh. *Bromus commutatus* Schrad. was also noted. By the Findhorn we gathered **Polygala vulgaris* L., which, I suspect, flowers earlier than *P. serpyllacea*, since it was unnoticed last year. **Geum intermedium* Ehrh., *Rosa canina* L. *var. *surculosa* (Woods), var. *biserrata* (Merat), *var. *decipiens* (Dumort), *var. *Watsoni* Baker, *var. *glauca* (Vill.), **Sedum Telephium* L. (as wild as elsewhere in Scotland), *Pyrola secunda* L., vast quantities of *Goodyera repens* Br., *Ribes Grossularia* L., **Thymus Chamædrys* Fries, **Myosotis repens* Don (given in the Forfar list by George Don as a *nomen solum*, and I cannot find the plant in his exsiccata), **M. cæspitosa* Schultz, **Carex flava* L., *Festuca sylvatica* Vill. Along the romantic banks of that most beautiful of Scotch rivers, the variety *hians* of *Melampyrum pratense* L. occurred for several miles in beautiful flower, and always constant in colour. Its brilliant orange corolla makes it a conspicuous plant. I thought I saw it from the train in a wood near Grantown; if so, it will be a new record for Easterness. *Hieracium aurantiacum* L. was naturalized on the rail-banks, and *Anchusa sempervirens* L. about Sluie, both in 95. *Phallus impudicus* was by no means unfrequent in Elgin, by the Findhorn, and mushrooms were abundant.

The *Ranunculus* alluded to previously, and which looked very distinct, I have been enabled, with the kind aid of Mr. Britten, to identify as—

Ranunculus acris L., var. pumilus Wahl. — b. pumilus caule unifloro. . . . . . Varietatem hujus pumilam foliis omnibus radicalibus habiitque R. bulboso similem in collibus siccis lapponiæ vidimus sed nullum R. bulbosum verum reperimus. . . . . In alpibus altioribus," Fl. Lapp. pp. 159, 160; G. Wahlenburg, 1812; also Fl. Suec. p. 365, 1831. Specimens in Herb. Br. Mus., and Hb. Oxon, coll. F. Ahlberg ex "Monte Knudsho Dovrefeld, alt. 4000 ped. rar." Reported also from the Faroe Islands, but I have seen no specimens.

Our plant occurred on the north side of the Cairngorms, in Corrie Sneachda, at an elevation of 2800–3500 ft. The neighbouring corries and glens yielded only the ordinary montane forms of *acris*. It is in cultivation in the Oxford Botanic Garden.

Description:—*Rhizome* horizontal, thick, fleshy, with numerous fibres: stem erect, arching at the top, 4–6 in. high, striate, nearly glabrous. *Leaves.*—Radical leaves long, petiolate, enlarged and sheathing at base, cordate, deeply tripartite, the lateral divisions cut from one-third to half the depth of leaf in two or three segments, which are again *bluntly* lobed; the central division not longer than the lateral, and less deeply cut. Cauline leaves lanceolate, entire or slightly toothed. Both radical and cauline leaves almost *glabrous*, rather fleshy, *glossy*, and rather translucent. *Flowers* usually solitary, or from 2–6 flowers $\frac{1}{2}$–$\frac{7}{8}$ in. circumference.

*Peduncles* generally arching, and frequently bent over so as to become pendulous, slightly clothed, especially towards the top, with white adpressed hairs. *Calyx* patent. *Sepals* with dark brownish centre, and membranous yellow-green border, clothed with shaggy hairs. *Petals* obovate or rather wedge-shaped, rather deeply notched, *strongly* marked with *brownish veins*. The plant was not advanced enough to show fruit.

The leaf-outline is so like some form of *R. bulbosus* L. that when out of flower it might easily be mistaken for it. Their texture recalls that of *R. glacialis* to some extent. From ordinary montane forms of *acris* it may be distinguished by the *nearly glabrous, glossy* leaves, of different outline and texture, with blunt segments; and by the more *strongly veined* and more deeply notched petals. Its patent calyx, of course, at once distinguishes it from *R. bulbosus*, which is not an alpine plant with us.

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# THE FRESHWATER ALGÆ OF MAINE.

### By Wm. West, F.L.S.

In this Journal for last November I published a short paper entitled "The Desmids of Maine." Since then I have been enabled to examine the material I have received from there with the result that many more species have been observed, some of which are new to the United States (these are prefixed with an asterisk in the following list), while one species and two varieties are new to science. One of these varieties—the trigonal form of *Micrasterias* — is extremely interesting, as I have never yet seen mention of such a form of this genus. Many Algæ other than Desmids have been noted in the gathering, though some cannot be determined, as the material having been collected chiefly for Desmids, was too scanty. Still, many of the unmistakable minute species were in profusion, so that I have included them in the following list, as well as those Diatoms that I have been able to identify satisfactorily. These last are arranged after Rabenhorst, the others after Wolle.

I have again to thank my son, G. S. West, for valuable help during the preparation of this paper.

Fine conjugated specimens of *Staurastrum brachiatum* Ralfs, and *Closterium Dianæ* Ehrenb., were observed.

*Œdogonium punctato-striatum* De By. Interesting, as this was only known in the United States from Florida.—*Œ. Boscii* Wittr. (Five other species of this last genus were seen with oogonia, but the material was too scanty for specific determination, the form and dimensions of the oogonia and cells agreed with the species. — *Œ. carbonicum* Wittr.—*Œ. fragile* Wittr. — *Œ. rufescens* Wittr. — *Œ. delicatulum* Kütz.— *Œ. Franklinianum* Wittr.)

*Cylindrocapsa geminella* Wolle.

*Microthamnion Kützingianum* Näg.

*Ulothrix subtilis* Kütz. var. *tenerrima* Kütz.

*Conferva floccosa* Ag.—*C. vulgaris* Rab.—*C. tenerrima* Kütz.

*Pediastrum angulosum* Meneg.—*P. Boryanum* Meneg.—*P. Ehrenbergii* A. Braun.

*Cœlastrum microsporum* Näg.

*Scenedesmus caudatus* Corda.—*S. acutus* Meyen.—*S. acutus* Meyen var. *obliquus* Rab.

*Ophiocytium cochleare* A. Braun.

*Chlorococcum gigas* Rab.

*Dictyosphærium Ehrenbergianum* Näg.

*Palmodactylon simplex* Näg.

*Schizochlamys gelatinosa* A. Braun.

*Palmella mucosa* Kütz.—*P. hyalina* Breb.

*Glœocystis vesiculosa* Näg.—*G. rufescens* A. Braun.

*Nephrocytium Nägelii* Gr.

*Chytridium globosum* A. Braun.

*Olpidium ampullaceum* A. Braun. This was on *Cosmarium De Baryi* Arch.

*Desmidium quadrangulatum* Kütz.

**Sphærozosma Aubertianum,** nov. sp. Large, nearly as long as broad, the incision narrowly acuminate, with two granules on each side of the rounded semicells. Side view of semicells almost globular, the granules having a linear arrangement. Lat. 18—23 μ; long. 16·5—19 μ; lat. isth. 6·5—8 μ. This species differs much from *S. granulatum* Roy et Biss., both in the number and arrangement of the granules, in the much larger size, and especially in the form of the isthmus.

*Penium Navicula* Breb.

*Closterium costatum* Corda.—*C. pronum* Breb.—*C. Leibleinii* Kütz.

*Cosmarium ovale* Ralfs. — *C. Cucumis* Corda. — *C. moniliforme* Ralfs.—**C. truncatellum* Perty.—**C. Regnesii* Reinsch.—*C. læve* Rab. var. *septentrionale* Wille. — *C. Meneghinii* Breb. var. *simplicimum* Wille.—*C. galeritum* Nord.—*C. ochthodes* Nord.—*C. excavatum* Nord. var. *duplo-major* Lund. This was seen with zygospores several times.—*C. commissurale* Breb.—*C. subcrenatum* Hantzsch. The side and end views of this were distinctly but faintly granulate. — *C. Bœckii* Wille.—*C. sphalerostichum* Nord. et Wittr.

*Tetmemorus Brebissonii* Ralfs.—*T. granulatus* Ralfs. — *T. lævis* Ralfs.

*Xanthidium fasciculatum* Ralfs. var. *hexagonum* Wolle. — *X. Tylerianum* W. West.

**Euastrum sinuosum* Lenor.—*E. binale* Ralfs. var. *elobatum* Lund. A form of the last species was seen with zygospore, which was rotund, bearing simple spines rather sparingly. I believe a fully developed zygospore has not been hitherto observed.

*Micrasterias pinnatifida* Ralfs.—*M. pinnatifida* Ralfs. var. TRIGONA, nov. var. End view trigonal with concave sides.

*Staurastrum tumidum* Breb. This exactly corresponded with British specimens and with Ralfs' figure.—*S. angulatum* W. West, var. SUBANGULATUM nov. var. Evidently a variety of *S. angulatum* with the apices of the angles more rounded and the sides more convex. Long. 73 μ; lat. isthm. 16 μ.—**S. apiculatum* Breb.—**S. O'Mearii* Arch. — *S. brevispina* Breb. — *S. pseudo-pachyrhynchum*

Wolle.—*S. muricatum* Breb.—*S. paradoxum* Meyen.—*S. Pseudosebaldi* Wille.—**S. Pringsheimii* Reinsch.—*S. cuneatum* Wolle.

*Sirosiphon pulvinatus* Breb.

*Oscillaria nigra* Vauch.

*Glœocapsa arenaria* Rab.

*Aphanocapsa virescens* Rab.

*Chroococcus turgidus* Näg.—*C. cohærens* Näg.

*Melosira varians* Ag.

*Surirella linearis* Sm.—*S. biseriata* Breb.—*S. angusta* Kütz.—*S. minuta* Breb.—*S. pinnata* Sm.

*Epithemia Sorex* Kütz.—*E. alpestris* Sm.

*Eunotia Arcus* Ehrenb.—*E. gracilis* Ehrenb.—*E. Soleirolii* Kütz.

*Cymbella Ehrenbergii* Kütz.—*C. cuspidata* Kütz.

*Odontidium hyemale* Kütz.

*Diatoma vulgare* Bory.

*Synedra lunaris* Ehrenb.—*S. Ulna* Ehrenb.—*S. splendens* Kütz. *S. Oxyrhynchus* Kütz.

*Nitzschia Amphioxys* Sm.—*N. vivax* Sm.—*N. sigmoidea* Sm.

*Navicula cuspidata* Kütz.—*N. rhomboides* Ehrenb.—*N. affinis* Ehrenb.—*N. cryptocephala* Kütz.

*Pinnularia nobilis* Ehren.—*P. major* Rab.—*P. Rabenhorstii* Ralfs.—*P. Tabellaria* Ralfs.—*P. gibba* Ehrenb.—*P. viridis* Rab.—*P. oblonga* Rab.—*P. alpina* Sm.—*P. mesolepta* Sm.

*Stauroneis Phœnicenteron* Ehrenb.—*S. anceps* Ehrenb.

*Gomphonema constrictum* Ehrenb.—*G. acuminatum* Ehrenb.

*Meridion circulare* Ag.—*M. constrictum* Ralfs.

*Tabellaria flocculosa* Kütz.

The above list contains 108 species and 7 varieties additional to the two previous lists for Maine,—my own in this Journal and Mr. Harvey's in the 'Bulletin of the Torrey Botanical Club' for June, 1888. The total number of Algæ recorded for Maine in these three papers is 228 species and 14 varieties and forms, 21 of the species and one of the varieties of which I have not yet seen.

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# NEW COUNTY RECORDS FOR SKYE, ROSS, SUTHERLAND, AND CAITHNESS.

By E. F. Linton, M.A., and W. R. Linton, M.A.

The following list is the result of observations made during the summer of 1888. All care has been taken to prevent the insertion of plants already recorded; and Mr. Arthur Bennett has been consulted for this purpose in the case of most of the plants below mentioned, and has kindly given his opinion in the case of several where confirmation of the name seemed desirable. The list is arranged in Watson's order of counties.

## 104. Skye.

*Ranunculus Flammula* L., var. *petiolaris* Lange. In shallow water, Slighacan, in two pools about three miles apart. The Rev.

E. S. Marshall is publishing a notice of this new variety, which he was the first to find, and also to work out as a segregate. His specimens were from Argyll.

*Nymphæa alba* L., var. *minor*. Pool near Sligachan.

*Hieracium murorum* L., *pro parte*, as a segregate. Sneasdal, near the Quiraing.—*H. sparsifolium* Lindeb. In two well-separated localities in the neighbourhood of Uig. This was considered by one of us as a variety of *H. sparsifolium*, approaching as it does the var. *diminutum* Lindeb., and differing from both type and variety in the shape of the base of the leaf. Mr. F. J. Hanbury, however, places it with the type, and has so referred to it on p. 74 of this volume. — *H. anglicum* var. *longibracteatum* F. J. Hanb. Lower rocks of Cuchullins, alt. 1500–2000 ft. Also in 1884, on rocks near the Quiraing; when Mr. Backhouse considered our plant to be "seedling *anglicum*"; and under this title it may have passed through the Botanical Exchange Club into several herbaria. Mr. Hanbury had not then named his variety, but, on seeing our specimens, has agreed to our present naming of them. The type we have previously recorded. — *H. Schmidtii* Tausch. Rocks at a low elevation, near Uig. Agreed to by Mr. Hanbury. — *H. caledonicum* F. J. Hanb. An extension westwards of this new species, which Mr. Hanbury has kindly identified for us. Typical specimens were gathered on rocks in two localities in the neighbourhood of Uig.

*Carex filiformis* L. Wet ground not far from Sligachan Hotel.

*Aira setacea* Huds. (*A. uliginosa* Weihe). Shallow margin of a pool, with *Eriocaulon septangulare*, about a mile from Sligachan Hotel.

### 105. West Ross.

*Hieracium murorum* L., var. *ciliatum* Almq. Rocks near Strome Ferry. The name was suggested by Mr. F. J. Hanbury, and, on comparison with Lindeberg's specimen, there seems no reason to doubt its correctness.

We noticed more bushes of *Rosa mollis* Sm., var. *glabrata* Fries, about half-a-mile along the rail from Strome, and in the shade of a wall of rock a few late flowers lingered, which were of a pure white.

### 107. Sutherland East.

*Montia fontana* L., var. *rivularis* Gmel. Helmsdale. This species does not appear to have been recorded. We noticed it only in one spot.

*Senecio viscosus* L. Among stones scarcely above high-water mark, Helmsdale.

*Sonchus asper* Hoffm. Helmsdale. A very glandular form, like a plant sent out through the Bot. Ex. Club, in 1884, by Mr. H. Bromwich, from Milverton.

*Stachys arvensis* L. Helmsdale.

*Rumex aquaticus* L. Sea-shore, Helmsdale.

*Festuca rubra* L., var. *pruinosa* Hackel. Near the Ord, but south of the boundary. The same plant we found in 1884 in Skye.

### 108. Sutherland West.

*Aira setacea* Huds. (*A. uliginosa* Weihe). On a small turf bog adjoining a large pool near the Naver, Betty Hill.

### 109. Caithness.

*Linum catharticum* L. A small, close-growing form with flat umbellate heads, on which Mr. Arthur Bennett remarks, "Very near, if not the same as, var. *condensatum* Lange." Frequent on the sandy Reay Links. Type previously recorded.

*Lathyrus sylvestris* L. On the cliffs near Berriedale.

*Rubus hemistemon* P. J. Müll. Dunbeath. Named for us by Dr. W. O. Focke.

*Rosa canina* L., var. *Watsoni*. So named by Mr. J. G. Baker. Near Dunbeath.

*Carex arenaria* L. A very elongate form, growing over 2 ft. in height, in a peaty ditch near Reay. Beyond the large size, Mr. A. Bennett did not detect any further peculiarity, the soil and situation no doubt accounting for the rank growth. Type previously recorded.

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# NOTES ON THE FLORA OF SOUTH BEDFORDSHIRE.

By James Saunders.

The following notes on the Flora of South Bedfordshire are supplementary to those which appeared in the 'Journal of Botany' for 1883 and 1884. Many of the species and varieties are new records; in other cases additional stations are given for the rarer forms, and in several instances plants previously recorded for North Beds. are now also given for South Beds. The list includes information both historic and recent; historic in so far as it records the labours of the late Rev. W. Crouch, of Cainhoe, and of Mr. M'Laren, of Cardington; recent in that it includes the latest observations of several local botanists, notably those of Mr. C. Crouch, of Pullox Hill, indicated in the list by *C. C.* The Rev. W. Crouch was for several years curate of Lidlington, and while residing there, and also at Cainhoe, he collected many interesting facts during the numerous walks taken in connection with his duties. These records are distinguished by the abbreviation, "*W. C. Herb.*," which implies that specimens are in existence in the herbarium formed by that gentleman, chiefly between 1842 and 1846, in which latter year he died. It is through the courtesy of Mr. C. Crouch, the nephew of the late Rev. W. Crouch, that these materials are available. The labours of Mr. M'Laren extended from about 1842 till a very recent date. He was a careful and persistent observer, and has left an extensive collection of local plants.

*Thalictrum flavum* L. Agg. Gravenhurst, *W. C. Herb.*, 1844. —Var. *riparium*. Limbury.

*Myosurus minimus* L. Ridgmount, *C. C.*

*Ranunculus peltatus*, var. *truncatus*. Slip End. — *R. pseudofluitans* Bab. Barton Springs. — *R. Drouetii* var. *cæspitosus* Thuill. On dried mud of a pond, Aspley. — *R. hirsutus* Curt. Ridgmount, *C. C.* Clophill, *W. C. Herb.*, 1842.

*Delphinium Ajacis* Reich. Field, Harlington, *Anstee*. Probably introduced.

*Papaver somniferum* L. Agg. Houghton Conquest, *C. C.* Field near Luton. Casual. — *P. dubium* var. *Lecoqii*. Ampthill, *C. C.* Flitwick.—*P. hybridum* L. Near Dunstable, *W. G. Smith*.

*Fumaria densiflora* DC. Mead Hook Wood, *C. C.* Limbury.—*F. Vaillantii* Loisel. Barton Hills, *C. C.*

*Sinapis alba* L. Near Luton Hoo, *J. Catt*.—*S. nigra* L. Clophill, *W. C. Herb.*, 1843.

*Diplotaxis muralis* DC. Ampthill, Oct. 1888, *C. C.* Casual.

*Draba muralis* L. Kimbolton, N. Beds., *Hamson*, 1888.

*Alyssum incanum* L. Casual. Flitwick, 1884.

*Camelina sativa* Crantz. Casual with clover, *circa* 1865; not seen since, *J. Crouch*.

*Teesdalia nudicaulis* Brown. Steppingley. Ampthill, *C. C.*

*Viola hirta* var. *calcarea* Bab. Barton Hills.

*Drosera rotundifolia* L. Maulden, 1845, *W. C. Herb.* I fear this is extinct, through draining. It is still fairly abundant on Flitwick Marsh, 1888.

*Dianthus Armeria* L. Railway introduction on the Midland Railway between Luton and Leagrave.

*Silene noctiflora* L. Leagrave, *Piffard*. Field south of Luton, 1887 and 1888.

*Stellaria glauca* With. Flitwick Moor, 1886, *Hamson*.

*Arenaria serpyllifolia* var. *sphærocarpa* Tenore. Luton Hoo Park wall.

*Sagina apetala* Prop. Base of a wall, Christ Church, Luton. — *S. nodosa* Meyer. Flitwick Moor.

*Spergula arvensis* L., var. *vulgaris*. Pepperstock.

(*Hypericum Elodes* L. "Potton Marshes," *Abbott*. I fear extinct, as it has been searched for carefully in recent years.)

*Geranium pyrenaicum* L. Ampthill, 1885, *C. C.* — *G. rotundifolium* L. Between Leagrave and Sundon, *C. C.* — *G. columbinum* L. Gravenhurst, 1842, *W. C. Herb.*

*Genista anglica* L. Maulden, 1844, *W. C. Herb.*—*G. tinctoria* L. Exeter Wood, N. Beds., *M'Laren*.

*Medicago sativa* L. Silsoe sand-pit; probably an escape. Railway introduction, Leagrave.

*Trifolium subterraneum* L. N. Beds., 1844, *M'Laren*.—*T. ochroleucum* L. Clophill, 1888, *C. C.* — *T. striatum* L. Cainhoe, 1845, *W. C. Herb.* An escape? — *T. scabrum* L. Flitwick Marsh, 1884, *M'Laren*.—*T. fragiferum* L. Barton, Clophill, *C. C.* — *T. filiforme* L. Cainhoe, 1845, *W. C. Herb.*

*Astragalus Hypoglottis* L. Abundant on the Warden Hills. In the 1884 list inadvertently recorded as *glyciphyllos*.

*Hippocrepis comosa* L. Warden Hills. Markham Hills. Dunstable Downs.

*Lathyrus Nissolia* L. Cainhoe, July, 1845, *W. C. Herb.* Clophill, 1888, *C. C.*—*L. sylvestris.* Cainhoe, 1845, *W. C. Herb.* Green Lane, Flitwick.

*Orobus tuberosus* L. Aspley Wood, 1844, *W. C. Herb.*

*Poterium muricatum* Spach. Abundant on railway-banks south of Luton. See Journ. Bot. 1876.

*Rubi.* The following have been named by Mr. J. G. Baker, to whom my best thanks are due for his unwearied courtesy:—*Rubus discolor* W. & N. Common near Luton. — Var. *pubigerus.* Heath and Reach.—*R. leucostachys* Sm. Luton Hoo. Pepperstock. Caddington. — *R. dumetorum* Weihe. Dunstable Road, under fir-trees. —*R. Radula* Weihe. Luton Hoo.—*R. diversifolius* Lindl. Dallow Lane.— *R. pallidus* Weihe. Luton Hoo.—*R. Koehleri* var. *pallidus* Bab., non W. & N. Badger Dell Wood.—*R. corylifolius.* Frequent near Luton, Barton Hills.

*Rosa canina* L., var. *lutetiana* Leman. Near Luton. — Var. *sphærica* Gren. A form near this, Limbury.—Var. between *lutetiana* Leman and *dumalis* Bechst. Limbury. — Var. *urbica* Leman. Limbury.

*Cratægus oxyacanthoides* Thuill. Near Warden Hills.

*Pyrus Pyraster* L. Flitwick Marsh. — *P. Malus* L., var. *acerba* DC. Sundon. Brammingham.—Var. *mitis.* Sundon. Dunstable.

*Peplis Portula* L. Dried-up pool, Luton Hoo, 1885, *J. Catt.*

*Myriophyllum verticillatum* L. Ridgmount, *C. C.* — *M. alterniflorum* DC. Pond, field, Pepperstock. Erroneously recorded as *verticillatum* in 1883 list.

*Ribes nigrum* L. Doubtfully indigenous. In a spinney by the River Lea, Leagrave. Moist wood, Luton Hoo.

*Centaurea solstitialis* L. A casual. Biscot.

*Achillea Ptarmica* L. Tingrith Park, *Twidell.*

*Artemisia Absinthium* L. Cainhoe, *W. C. Herb.*, 1842.

*Senecio erucifolius* L. Gravenhurst, *C. C.*, 1888.

*Bidens tripartita* L. Flitwick, near Luton.

(*Gentiana campestris* L. Recorded by Abbot for Barton Hills; there is, however, no specimen in his herbarium (see Journ. Bot. 1881, p. 43). No observer has recently found *G. campestris* in Beds., although tetramerous forms of *Amarella* are frequent.)

*Cuscuta Epithymum* Murr. On clover, &c., near Luton, Biscot, Southill, Heath and Reach.

*Orobanche major* L. Aspley, 1844, *W. C. Herb.* — *O. minor* L. Ampthill. Flitwick. Harlington.

*Lamium incisum* Willd. A garden weed, Luton.

*Lithospermum officinale* L. Clophill, 1844, *W. C. Herb.*

*Pinguicula vulgaris* L. Pegsdon, *Pollard.* Streatley Hills, on a chalk-hill side with a N.E. aspect, *C. C.* Plentiful in one spot some seasons, Totternhoe Mead, *W. G. Smith;* but this station was brought under cultivation in 1888, hence it is now probably extinct.

*Utricularia vulgaris* L. In a ditch near Bedford, *A. Ransom*, 1888. An interesting re-discovery of a rare Beds. plant. First found in the county by T. Vaux, *circa* 1800.

*Samolus Valerandi* L. Gravenhurst, 1844, *W. C. Herb.*

*Chenopodium polyspermum* L. Luton Hoo, *J. Catt.* Near Pullox Hill, *C. C.* — *C. album* L., var. *paganum.* Luton. — *C. rubrum* L. Lidlington, *W. C. Herb.*, 1845; *Silsoe*, 1884.

*Rumex nemorosus* Schrad., var. *viridis.* New Mill End. — *R. pulcher* L. Pullox Hill, *C. C.* Clophill, 1885.—*R. Hydrolapathum* Huds. Clophill, *W. C. Herb.*, 1845. River Ousel, Heath and Reach, by mistake given as *aquaticus* in 1883 list. By the River Lea, New Mill End.

*Polygonum lapathifolium* L. Frequent by the River Lea. — *P. Bistorta* L. Moist meadow, Totternhoe, S.W. from the Knoll, 1888.

*Salix pentandra* L. Leagrave Marsh, probably planted. — *S. alba* L. Frequent.—*S. Smithiana* Willd. Frequent near Limbury and Biscot.

*Juniperus communis* L. One bush on Barton Hills.

*Taxus baccata* L. "Probably naturalized longer than many plants now considered indigenous," *C. C.* Too frequent to be omitted.

*Typha angustifolia* L. Lidlington, 1845, *W.C. Herb.* Beadlow, by the River Ivel, 1888, *C. C.*

*Acorus Calamus* L. Tingrith Park, *Twidell.*

*Potamogeton polygonifolius* Pour. Flitwick Moor. — *P. rufescens* Schrad. Near Cainhoe, *W. C. Herb.*, 1845. — *P. lucens* L., var. *acuminatus* Schum. River Ivel, Shefford, 1884.

*Ophrys apifera* Huds. Usually uncertain in appearance; has been singularly constant near the Rifle Butts, Luton, occurring each season from 1882 to 1889.

*Epipactis palustris* Crantz. Gravenhurst, *W. C. Herb.*, 1842.

*Carex divulsa* Good. Sundon Woods, Farley Hill.—*C. axillaris* Good. Fenlake, N. Beds., *M'Laren.*—*C. stricta* Good. Totternhoe. — *C. acuta* L. Fenlake, N. Beds., *M'Laren.* — *C. vulgaris* Fries, var. *juncella* Fries, *teste A. Bennett.* Paradise Row, Limbury. — *C. pendula* Huds. Luton Hoo Park.—*C. binervis* Sm. Brook-side, Markham Hills. — *C. flava* L. The only form observed is *minor* Towns.—*C. vesicaria* L. Flitton Moor, *M'Laren.*

*Setaria viridis* Beauv. Casual. Flitwick, on the Midland Railway.

*Phleum pratense* L., var. *nodosum.* Putnoe Wood, *M'Laren.* Near Warden Hills, 1888.

*Bromus erectus* Huds. Abundant on the lower chalk escarpment.

*Brachypodium pinnatum* Beauv. Waste ground, General Cemetery, Luton, 1885.

*Athyrium Filix-fœmina* Bernh. Aspley Woods, *Mrs. Twidell.*

*Aspidium aculeatum* Sw. Chicksands, *C. C.*

*Nephrodium dilatatum* Desv. Aspley Woods, *C. C.* Flitwick Woods.

*Osmunda regalis* L. Tingrith Park, probably planted.

*Tolypella glomerata* Desv. Pool near Bedford, *Davis.* — *T. intricata* Leonh. In a small pool between Brammingham Woods, 1883; absolutely absent in 1884; present in each successive season, 1885–1889. I have made many attempts to introduce this plant into neighbouring pools and streams, but at present without apparent success.

# BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.

By James Britten, F.L.S., and G. S. Boulger, F.L.S.

(Continued from p. 182.)

**Johnston, George** (1797–1855): b. Simprin, Berwicksh., 20th July, 1797; d. Bridge of Allan, 30th July, 1855. M.D., Edinb., 1819. LL.D., Aberdeen. Mayor of Berwick. Orig. Memb. Berwicksh. F. Club. 'Fl. of Berwick,' 1829–1831, illustr. by his wife. 'Bot. Eastern Borders,' 1853. Contrib. to Eng. Bot. 2776, 2866. Pritz. 157; Jacks. 564; Proc. Berwicksh. Field Club, iii., 202; R. S. C. iii. 563; viii. 30; Gard. Chron. 1855, 597.

**Johnstone, William Grosart** (d. c. 1860): d. London, circ. 1860. 'Nature-printed . . . . Sea-weeds' (with Croall), 1859–1860. Pritz. 157; Jacks. 242.

**Jones, A. M.** (1826?–1889): d. Clifton, Somerset, Feb. or March, 1889. Colonel. Grew and studied varieties of British Ferns. 'Hybrid Ferns' (with E. J. Lowe), Ann. Bot. iii. 27 (1889). Gard. Chron. 1889, i. 310.

**Jones, Rev. Hugh** (fl. 1699). Sent "several volumes of plants" from Maryland to Petiver, Mus. Pet. 44. Hb. Sloane, 74, 158.

**Jones, Jezreel** (fl. 1699). Sent plants from Portugal to Petiver, Mus. Pet. 45. Hb. Sloane, 16, 80.

**Jones, Rev. John Pike** (fl. 1820–1829). 'Bot. tour through . . . Devon and Cornwall,' 1820. 'Fl. Devoniensis' (with J. F. Kingston), 1829. Fl. Plym. xxix.; Pritz. 157; Jacks. 250.

**Jones, Theobald** (1790–1868): b. Dublin, 1790; d. Dublin, 12th Feb. 1868. Admiral. M.P. for Londonderry. F.L.S., 1842. Lichenologist. Herbarium at Trin. Coll., Dublin. Jacks. 351; R. S. C. viii. 36; Proc. Linn. Soc. 1867–1868, cv.

**Jones, Thomas,** "Bard Cloff" (fl. 1760–1828). 'A British and English Herbal' (in Welsh), in his Welsh and English Dictionary, 1760. Davies' 'Welsh Botanology,' pref. xi. note.

**Jones, Sir William** (1746–1794): b. London, 28th Sept. 1746; d. Calcutta, 27th April, 1794; bur. Calcutta. F.R.S., 1772. M.A., Oxon, 1773. Linguist. Judge of Supreme Court, Calcutta, and Knighted, 1783. 'Works,' in 6 vols., Botany in vol. ii., 1799. Life and Works, 1807. Autobiog., 1846. Pritz. 157; R. S. C. iii. 576. Monuments in St. Paul's, in Calcutta, and one by Flaxman at Univ. Coll., Oxon. *Jonesia* Roxb.

**Jones, Rev. William** (1726–1800): b. Lowick, Northamptonsh., 30th July, 1726; d. Nayland, Suffolk, 6th Feb. 1800. Of Nayland. B.A., Oxon, 1749. Vicar of Bethersden; Rector of Pluckley and Hollingbourne, Kent; Pastor, Northants; and Curate of Nayland. Preached the Fairchild Sermon, 'The religious use of botanical philosophy,' a sermon, 1784. Pritz. 157; Life and Works, 1801; Chalmers.

**Jorden, George** (fl. 1842–1863). Of Bewdley. Discriminated *Epilobium macrocarpum*, Ann. & Mag. viii. (1842), 246. Contributed to Phyt. i.–vi., n. s. R. S. C. iii. 580.

**Josselyn, John** (fl. 1633–1674). In Massachusetts, 1633–1674. 'New England's Rarities,' 1672. 'Two Voyages to New England,' 1674. Pritz. i. 133; Jacks. 354.

**Just, John** (1797?–1852): b. Natland, Kendal, Westmoreland, 1797?; d. Manchester?, 1852. Assistant-master, Kirkby Lonsdale and Bury Grammar-schools. Prof. Bot., Manchester Institution, 1848. Found *Cypripedium* at Arncliffe, Yorkshire, 1835. Phyt. i. 396; Cash, 136; Mem. Lit. Phil. Soc., Manchester, 2nd S., xi. 91.

**Justice, James** (fl. 1754). Of Edinburgh. 'British Gardener's Director,' Edinb., 1754. F.R.S.? Pritz. i. 136. *Justicia* L.

**Keddie, William** (fl. 1844). Sec. Bot. Soc. Glasgow. 'Bot. of Bass Rock,' 1844. Phyt. ii. 242.

**Keil, James** (d. 1719): d. Northampton, 16th July, 1719. M.D. Surgeon. Sent plants to Petiver, Mus. Pet. no. 219. Plants from Cyprus, Rhodes, &c., in Hb. Sloane, 11.

**Keir, Walter** (fl. 1699). Surgeon. Sent plants from Malacca and China to Petiver, Mus. Pet. 45, 80.

**Keith, Rev. Patrick** (1769–1840): b. Scotland, 1769; d. Stalisfield, Kent, 25th Jan. 1840. M.A., Glasgow. F.L.S., 1805. Vicar of Stalisfield. 'System of Physiol. Bot.,' 1816. 'Bot. Lexicon,' 1837. Pritz. 162; Jacks. 565; R. S. C. iii. 628; Proc. Linn. Soc. i. 70. *Keithia* Benth.

**Kendrick, James** (1771–1847): b. Warrington, 14th Jan. 1771; d. Warrington, 30th Nov. 1847. M.D. F.L.S., 1802. Pres., Warrington Bot. Soc. Contributed notes to Crosfield's 'Calendar of Flora.' Practised in Warrington from 1793. Memoir, with Silhouette portr., in his 'Profiles of Warrington Worthies,' ed. 2, 1854. *Rhododendron Kendrickii* Nutt.

**Kennedy, Lewis** (fl. 1775–1818). Nurseryman, of the Vineyard, Hammersmith. Father-in-law of H. C. Andrews. Wrote much of 'Bot. Repository' 1799–1804. Author of Page's 'Prodromus'? (*cf.* Johns. Dict. Gardening, 301). Rees, Add. *sub* Kennedia. Loud. Arboretum, i. 78; Ventonat, Jard. Malm., tab. 104, 1804. *Kennedia* Vent.

**Kennion, Edward** (1743–1809): b. Liverpool, 15th Jan. 1743, o. s.; d. Liverpool, 14th April, 1809. Artist. F.S.A. 'Essay on Trees in Landscape,' 1815. Memoir prefaced to above work. Pritz. 162.

**Kent, William** (d. before 1828). Gardener. F.L.S., 1813. Accompanied Reinwardt in Indian Archipelago. Blume, Fl. Jav. i. 71; Rumphia, ii. 94. *Kentia* Bl., Fl. Jav. = *Melodorum*. *Kentia* Bl., Rumphia.

**Kent, Miss** (fl. 1823–30). 'Flora Domestica,' 1823. 'Sylvan Sketches,' 1825. 'Considerations on Bot.,' Mag. Nat. Hist. 1828, 30. Pritz. 162; Jacks. 214; R. S. C. iii. 638.

**Kentish, Richard** (fl. 1782–1791). M.D. Edinb. 'Experiments and observations on . . . Bark,' 1784. Dryander, iii. 472. President, Society of Naturalists, Edinb., 1782.

**Keogh, Rev. John** (fl. 1735–1744). A.B. Chaplain to Lord Kingston. 'Botanologia . . . Hibernica,' 1735. Pult. ii. 201; Pritz. 162; Jacks. 247.

**Ker, Charles Henry Bellenden** (fl. 1821–1853). 'Icones plantarum Chinâ nascentium.' Pritz. no. 10779, 1821.

**Ker, John Bellenden** (*olim* **Gawler**) (d. 1871): d. Cannes, 1871. Edited 'Bot. Register,' 1815–1824. 'Strelitzia,' 1818. 'Iridearum genera,' 1827. Trans. Linn. Soc. x. 166; Gard. Chron. 1871, 1589; Journ. Bot. 1872, 32; Pritz. 162; Jacks. 565; R. S. C. iii. 639. *Bellendena* Br.

**Ker, William** (d. 1814): d. Ceylon, 1814. Kew gardener and collector. Canton, 1803; Java and Philippines. Superintendent, Peradeniya Bot. Gard., 1812. Gard. Chron. 1881, ii. 570; Trans. Linn. Soc. xii. 154; Lambert, Pinus, ed. 2, ii. 111. *Kerria* DC.

**Kett, Mrs. Hannah** (fl. 1799). Of Seething, Norfolk. Contrib. to Eng. Bot. 69, 318, 514, 691, &c.

**Key** [*see* Caius, John].

**Keys, Isaiah W. N.** (fl. 1848–1867). Bookseller, of Plymouth. 'Flora of Devon and Cornwall,' 1866–7. Contrib. to Phyt. iii. Pritz. 163; Jacks. 151; R. S. C. iii. 646, viii. 71.

**Kinahan, John Robert** (1828–1863): b. 1828; d. Dublin, 2nd Feb. 1863. M.D., Dublin. F.L.S., 1858. Geologist. Prof. Zoology, School of Mines, Dublin. Hon. Sec. Dublin N. H. Soc. Proc. Dublin Nat. Hist. Soc. 1855–9; Proc. Linn. Soc. vii. xlii.; R. S. C. iii. 651, viii.

**King, Philip Parker** (1793–1856): b. Norfolk Island, 13th Dec. 1793; d. Grantham, Sydney, 25th Feb. 1856. Captain, R.N. Rear-admiral, 1855. F.L.S., 1824. F.R.S., 1824. 'Narrative of the Survey of . . . Australia,' 1818–1822' (with Allan Cunningham), 1827. 'Narrative of the . . . . voyages of H.M.S. 'Adventure' and 'Beagle,' 1826–1836.' Plants in Brit. Mus. and at Edinburgh. Pritz. 164; R. S. C. iii. 655; Proc. Linn. Soc. 1856–7, xxiii. *Kingia* Br.

**King, Samuel** (fl. 1840–4). Of Luddenden, near Halifax. Contributed to Phyt. i.

**Kingsley, Rev. Charles** (1819–1875): b. Holne, S. Devon, 12th June, 1819; d. Eversley, Hants, 23rd Jan. 1875; bur. Eversley. M.A., Cambridge. Rector of Eversley, 1844. Canon of Chester, 1869; of Westminster, 1873. Novelist, essayist, naturalist. F.L.S., 1856. 'Letters and Memories,' with portr. engr. J. C. Armytage, 1877. Proc. Linn. Soc. 1874–5, lvi.; R. S. C. viii. 76. Bust by Woolner in Westminster Abbey.

**Kingsley, Charlotte** [*see* Chanter].

**Kingsley, Henry** (fl. 1838–1852). M.D. F.L.S., 1852. Of Uxbridge. Corr. Memb. Bot. Soc. Lond. Herbarium in possession of J. Cosmo Melvill.

**Kingston, J. F.** (1829). 'Fl. Devoniensis' (with Rev. J. P. Jones), 1829. R. S. C. iii. 658.

**Kingston, Robert Creaser** (1846?–1872): b. Yorksh., 1846?; d. Kew, 21st June, 1872. Assistant in Herb. Kew. Journ. Bot. 1872, 224; Gard. Chron. 1872, 876. *Kingstonia* Hook. f.

**Kingstone, —.** (fl. 1724). M.D. Discovered *Saxifraga Hirculus* at Knutsford. R. Syn. iii. 355. *Kingstonia* S. F. Gray = *Saxifraga Hirculus*.

**Kippist, Richard** (1812?–1882): b. Stoke Newington, 11th June, 1812; d. Chelsea, 14th Jan., 1882; bur. Brompton Cemetery. A.L.S., 1842. Assistant Librarian, Linn. Soc., 1830; Librarian, 1842–1880. Pritz. 164; Journ. Bot. 1882, 63; R. S. C. iii. 658; Proc. Linn. Soc. 1881–2, 64; Gard. Chron. 1882, i. 91. *Kippistia* Miers = *Salacia*. *Kippistia* F. von Muell. = *Minuria*.

**Kirckwood, John** (fl. 1698). Surgeon. Sent plants to Petiver from Angola and Old Calabar. Mus. Pet. nn. 155, 167; Gazoph. p. 9.

**Knapp, F. H.** (fl. 1846–1863). Of Bath. 'Botanical Chart,' 1846. Pritz. 165; Jacks. 235.

**Knapp, John Leonard** (1767–1845): b. Shenley, Bucks, 9th May, 1767; d. Alveston, Gloucestersh., 29th April, 1845. F.L.S., 1796. 'Gramina Britannica,' 1804. 'Journal of a Naturalist,' 1829. Contrib. to Eng. Bot. 688, 1127. Pritz. 165; Jacks. 239; Proc. Linn. Soc. i. 244; 'Athenæum,' 1845, 463. *Knappia* Sm. = *Mibora* Adans. *Knappia* F. Bauer = *Rhynchoglossum* Blume.

(To be continued.)

## SHORT NOTES.

Festuca heterophylla Lam. in Britain (see pp. 94, 153).—I fear this plant, discovered by the Rev. E. S. Marshall in Surrey, can scarcely be considered a native of Britain. It is a South European plant, finding its northern limits in the latitudes of Paris and Frankfurt, with the continental climates of these places. Further north, in Denmark, Belgium, and England, it has, I have little doubt, been introduced as a good pasture-plant. It was known to George Sinclair in the beginning of the century. He published it at first under the name *Festuca hordiformis*, but in 1816, when the folio edition of his classical work, 'Hortus Gramineus Woburnensis,' was published, he accepted the judgment of Sowerby, and ranked it as a variety of *F. ovina*. A specimen of the grass is inserted in this edition of his work, and in the 8vo edition (1824) a very good plate is given. He says:—"I am uncertain as to its native place of growth, having never discovered it in any soil or situation in a wild state. Native of Britain" (p. 36). In 1824 he doubted its being a native of Britain, and added a query to this statement. He cultivated a sufficient quantity at Woburn to enable him to determine the produce per acre, and to have it analysed with the view of determining its food-value. Mr. Sinclair specifies his obligations to Mr. Thomas Gibbs, Seedsman to the Board of

Agriculture, for information respecting those plants more recently introduced to the agriculturist, which he could not otherwise have obtained. This firm still exists, and among the grass for pasture they offer for sale is *Festuca heterophylla* Lam. Mr. M. J. Sutton, in his work on 'Permanent and Temporary Pastures' (1886), says this Fescue was introduced into England in 1814; he gives an account of the plant, and a figure in which the character of the root-leaves is not correctly rendered. The firm of seedsmen of which Mr. Sutton is a member have also for many years had the seeds of this species on sale. Messrs. Carter in their Grass Catalogue give a small but good figure of this species, and offer it for sale, recommending it as "a popular continental grass, well adapted where a heavy swarth is wanted, and desirable in mixtures for ornamental grounds on account of the bright colour of its foliage." Webb also gives a figure in his Catalogue, and recommends it for use. And Dr. Stebler, in his 'Best Forage Plants'—I quote Mr. McAlpine's recent translation—says:—"Several varieties of this plant are in cultivation in England. The following deserve mention: 1, *præcox* (an early variety); 2, *purpurata* (a purple variety); 3, *serratifolia* (a variety with serrated leaf-blades); and 4, *glabra* (a hairless variety)." I do not know what is Dr. Stebler's authority for this statement, but the value of it is considerably modified by his subsequent criticisms. That the plant has been in cultivation for over seventy years, and that the seed can be purchased at any seedsman's for a small price per pound, cannot be doubted; and these facts seem sufficient to account for its occurrence in the localities noted in recent numbers of this Journal.—Wm. Carruthers.

Gentiana Amarella var. præcox.—I have lately found this in very great profusion on several of our I. of Wight Downs, *e. g.*, Bembridge, Bonchurch, Boniface, and Rew. On the latter it is especially fine, some specimens being 6 in. high. The majority of specimens have *four* cleft flowers, though I have found many pentamerous plants. I have searched with others very carefully for *præcox* in the locality I mention for three or four years without finding a single specimen, and in some of them without even seeing an autumnal plant. Some six years ago I noticed the early-flowering variety in several places, but did not then know that it was a rarity. I have seen four or five more flowers on the same plant.—Augustus Steuart.

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## NOTICES OF BOOKS.

*A Flora of Herefordshire.* Edited by William Henry Purchas and Augustin Ley. Hereford: Jakeman & Carver. 8vo, pp. xi., xxxvii., 545. [1889.]

The names of the two experienced and accomplished botanists who now, after many years' investigation, have issued this work, under the auspices of the Woolhope Naturalists' Field Club, were in themselves sufficient guarantee that the result would be both correct and thorough. A perusal of its pages quite justifies this anticipation, and every student of the distribution and criticism of British plants should have a copy on his shelves. It is clear that no pains have been spared to ensure the greatest possible accuracy, the temptation to swell the county list by including doubtful records being steadily and consistently fought against.

The number of phanerogams and higher cryptogams admitted as native slightly exceeds 900; 283 mosses are given, one of which is for the first time published as British, and no fewer than 1097 fungi. The late Dr. H. G. Bull, of Hereford, very largely contributed, alike by his own indefatigable industry and his power of interesting others in the subject, to the last-named section, with results probably unapproached hitherto in any English district of the same area. Herefordshire Lichens and Algæ are not yet sufficiently worked out to find a place here. The editors have received a considerable amount of local help, which is fully acknowledged; and have also benefited greatly by the co-operation of such leading botanists as the late Dr. Boswell, Mr. H. C. Watson, the Rev. W. W. Newbould, Prof. Babington, Dr. Cooke, and Messrs. J. G. Baker, Archer Briggs, Arthur Bennett, Leefe, and Worthington Smith. But they have not scrupled to express their own opinion when it differed from that of an acknowledged authority.

The task of writing has been simplified by the comparatively small amount of previous printed records, Mr. Lees' 'Botany of Malvern' being the only work bearing much on the county botany. The nomenclature is taken from the 'London Catalogue,' ed. 7, much of the MS. having apparently been in the printer's hands before the publication of the eighth edition. Owing to the present chaotic state of our plant-names, the drawback is not so great, perhaps, as might have been supposed. Attention is frequently called to the "agrestal" character of the flora as a whole, that of the Black Mountain, on the Brecknockshire border, being the most important exception. A list is given of the more prominent secondary hills, with their elevations, varying from 660 to nearly 1600 feet; also an analysis of the phanerogams, according to Watson's "types of distribution." About one-half of the whole number are referred to the British class, one-quarter to the English, the rest being made up as follows:—25 Scottish, 9 Intermediate, 4 Highland, 21 Germanic, 15 Atlantic, and 9 Local.

Some concise but interesting notes on the climate, contributed by Mr. Henry Southall, close the thoroughly practical Preface. Thirty-seven introductory pages are devoted to the definition of the rather numerous (fourteen) districts, based partly on drainage, partly on geological features, and, in no small degree, on the eccentricities of the county border-line; with notes on the geology of each, from the pen of the Rev. W. S. Symonds. He writes:—"I cannot close this notice of the Geology of Herefordshire without remarking that there are few localities where the great lessons in geology may be more easily learnt . . . . . the two lessons of upheaval and erosion may be studied without difficulty." The

Introduction is printed in much larger lettering than the Preface and the body of the book, as though having been first separately issued, and kept in type; and this rather mars the generally excellent "get-up." An over-exclamatory appearance is also caused by the fact that "in all records other than those made by the responsible editors, a ! is appended to the recorder's name when the editors have personally seen a dried specimen; !! when they have seen a *fresh* specimen; !!! when they have seen the plant actually growing at the spot to which the record refers." Misprints are not frequent, other than those noticed in the brief 'Corrigenda'; such anomalies as "Viola *C*anina," "Astragalus gly*ci*phyllus," "Wi*rg*ten," "C*h*icorium," "Chenopodium urbium," "Carex ve*sci*caria," being probably due to slips in writing. "Referrible" is used throughout, instead of "referable"; "succurs" is not a good substitute for "suckers"; nor is "pyramidical," though perhaps more Johnsonian, so agreeable to present usage as "pyramidal." The authority for a varietal name is too often omitted, and some of the "English names" are certainly not to be found in common use, *e.g.*, "Thyrsus-flowered Bramble," "Long-clustered Bramble," &c.

But such trifling blemishes as these detract little from the sterling merit of the work as a whole. Not only is it evidently a faithful and apparently a full catalogue of the county vegetation, but the fruits of careful, intelligent, and prolonged study of the living plants and their habits are everywhere visible. If, for example, observers in other parts of the country would bestow as much attention upon the forms of *Epipactis* growing in their neighbourhood as has been done here, the present confusion upon the subject would be of no long continuance. Such a note as the following, again, is of much value, taken in connection with the occurrence of *Pulmonaria officinalis*, in profusion, in Suffolk woods: "This plant does not seed nor root readily; hence, though so common and favourite a plant in cultivation, it seldom succeeds in naturalizing itself beyond the limits of the garden."

On p. 277 is an interesting extract from a letter of the Rev. J. E. Leefe, commencing thus:—"The more I study the Willows the more difficult I find them, for it appears to me that there are three classes among them: (1) Those that are distinct, as species; (2) those which are distinguishable, but not distinct; (3) those which are undistinguishable." Dr. Buchanan White has recently pointed out that much of the uncertainty connected with our salicology has been caused by ignoring the existence of hybrids. The same is true in the case of the Willow-herbs. Mr. Ley has a careful note on *Epilobium Lamyi*, but is scarcely right in asserting that "its general aspect is rather that of *E. obscurum*" than of *E. tetragonum* [*adnatum*]; nor is the statement of Grenier and Godron, which he quotes, that "sa durée . . . est annuelle, ou bisannuelle," warranted by normal experience.

Most people will probably be surprised at some of the Mistletoe's ascertained hosts, such as *Corylus*, *Rosa canina*, *Ribes Grossularia*, and *Cedrus Libani;* excellent extracts on the life-history of this parasite are borrowed from the Woolhope Club's 'Transactions.'

The treatment of *Festuca rubra* scarcely appears satisfactory, but great confusion has hitherto reigned with regard to the British forms in this section of a difficult genus. *Rosa* and *Rubus* are treated exhaustively, a large part of the Appendix being devoted to the latter.

Only a few *local* plant-names are given; that of "Maithen" for *Anthemis Cotula* being the quaintest. In W. Surrey it is called "Poison Magweed" (Mayweed?) by the harvesters, whose hands are often much inflamed by its acrid juice. Another such word is thus explained:—"The term 'Leasow' is used in a peculiar sense in the hop-growing districts, for an enclosure of grass-land over which are scattered alders and ash which are not suffered to grow into timber, but cut periodically for hop-poles, &c." The following opinion would hardly be endorsed by one whose explorations had been confined to the home counties:—"Notwithstanding the close proximity of its usual stations, it [*Ægopodium Podagraria*] would perhaps be better regarded as a native species which finds its most congenial home in spots which man cultivates, than as an introduction."

With regard to the character of the flora itself, the most striking feature is the abundance of limestone-loving species, and the rarity or absence of many bog and moorland plants in all but one or two districts. *Avena pratensis* is a strange absentee, and *Polygala calcarea* might almost have been expected to occur. *Teesdalia* has become extinct in its only station. Yet the list of *Carices* is by no means a short one, and includes the usually maritime *C. distans*, which is, however, also found in Wilts, and grows near Weimar, in the very heart of Germany.

Besides a useful map, plates are given of *Juncus tenuis* and *Epipogum aphyllum*, and there is a woodcut representing the labels of "*Epipactis ovalis*" from Herefordshire, Yorkshire, and N. Wales.

Edward S. Marshall.

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*Herbarium Musei Fennici.* Ed. secunda. 1. Plantæ Vasculares, curantibus Th. Sælan, A. Osw. Kihlman, Hj. Hjelt. Helsingforsiæ. 1889. Pp. i.–ix., 1–156, ex officine Typographica heredum J. Simelii.

In 1852 the Société pro Fauna et Flora Fennica published a list of their Finland vascular plants, followed in 1859 by a complete catalogue of the Finnish plants they possessed, with a map. This present Flora-Catalogue (for it partakes of the character of both) is a second edition of that of 1859, so far as concerns the vascular plants. The number of species given in the present one is 930 species, or 1047 species and subspecies, with 59 hybrids, and 58 varieties.

The present work commences with a very interesting historical account of the gradual growth of the collections of the Society, printed in parallel columns, in Swedish and French. Going back to the terrible fire that devastated Abô (the old capital) in Sept. 1827, the then condition is traced to the actual commencement of the collections in 1840, the foundation being laid by the rich collections of the brothers Nylander and M. Tengström. After this the collection has grown "day by day to the great satisfaction of all friends of the study of the Natural History of Finland." In 1870 the Society appointed a committee of six members to draw up divisions, and reconstruct the map of 1859.

This present one differs from that of 1859, insomuch that the greater part of East Finmark is excluded, and the boundary on the east made to follow the rivers Muonio and Torneå, the political boundary dividing Finland from Scandinavia.

It had been determined by the Society to publish a complete catalogue of the plants of Finland; but the vasculares being fully worked up, the cryptogamic part is reserved for some future time. The various groups have been elaborated by different authors, notably the Hieracia by Norllin. Following the historical account is a chronological one of the plant-discoveries and discoverers from 1859 to 1889. A list of contributors under the various provinces, with a synopsis of the arrangement followed (that of Eichler in his 'Syllabus der Vorlesungen über specielle und medicinsch-pharmaceutische Botanik'); this commences with the *Equisetaceæ* and ends with the *Compositæ*.

What may be called the Flora follows; the distribution is shown by the first letters of the twenty-nine botanical provinces adopted. These are given in an irregular parallelogram, with the names of the species placed under, the absence of a species for a given province being indicated by a dot. The plants of that portion of Swedish Lapland (here called Lapponia Enontekiensis) immediately adjoining is also shown, but outside the line; twelve of these are placed on a page, and this occupies 121 pages of the book. A somewhat similar plan was lately used to show the distribution of the Carices of Holland, but small maps were used with crosses indicating where the species had occurred.

In the same sequence some of the rarer plants are given with localities, accompanied by remarks, new forms, &c.; among the genera that are specially worked up may be named *Betula* and *Polygonum*. Eight pages are then occupied with descriptions of new species, subspecies, and varieties of the genus *Hieracium*, though a few of these had been previously so treated in Hjelt's and Hult's 'Vegetation Kemi Lappmark' and Norllin's 'Bidrag. Skand. Hier.' Lastly, there is an index of genera and two maps.

The fourteen ancient provinces are divided into twenty-nine botanical districts founded on some natural basis, or some uniformity in the vegetation, and named after some local or geographical peculiarity—such as Lapponia kemensis, Karelia onegensis, Ostrobottnia borealis, &c.; these are excellently shown in the large map accompanying the Catalogue, while the small map acts as a key to the other. Finland, as here understood, has its eastern boundary in the Gulf of Bothnia, northward continued by the boundary of Norway and Sweden, the coast of the Arctic Sea, round to that of the White Sea, the line taken including the group of islands off Cape Onega; touching the land again at the outlet of the River Wig, bending round to the west side of Lake Onega, thence to include about two-thirds of Lake Ladoga, and continued just north of St. Petersburg and Kronstadt to the Gulf of Finland.

Perhaps nowhere else in Europe is there such an extensive and intricate series of lakes and rivers as in South-central Finland. Of the botanical districts, that of "Aland" (the group of islands so named) is perhaps the most interesting, no less than fifty-six species being found in that province only.

The flora is richer than might be expected, looking at the great difference in the vegetation of the west side of Norway, and the east side of Sweden bordering the Gulf of Bothnia. The north-western districts have many plants that are exceedingly rare, or scarcely found elsewhere in Europe.

A new species of *Potamogeton* (*P. Wolfgangii* Kuhlman) is admitted, which in the 1st ed. was called *P. nigricans* Fr. This has been gathered and distributed as "*P. salicifolius* Wolf.," which it is not. *P. nigrescens* Fr. had three distinct values in its describer's eyes; but the original specimens from Lapponia Pithensi 1824! were a form of *rufescens*, as Læstadius so named them. *Alnus glutinosa* L. occurs north to lat. 65° 28′, "fertile"; in Norway it occurs north to 64° 19′: *Quercus pedunculata* to 61° 5′ (Norway to 62° 55′). *Ulmus montana* With. to 62° 35′ (Norway to 67° 17′): *Tilia ulmifolia* Scop. to 63° 30′ (*T. parvifolia* in Norway to 63° 40′). A new *Taraxacum* is described—"*T. nivale* Lange *in litt.*" Many interesting remarks on what may be only local forms will be found, but this notice of a local Catalogue is already too long.

ARTHUR BENNETT.

## ARTICLES IN JOURNALS.

*Bot. Centralblatt.* (No. 22). — C. Ochsenius, 'Ueber Maqui.' — G. A. Karlsson, 'Das Transfusionsgewebe bei den Coniferen.'— (No. 23). E. Nickel, 'Ueber die Farbenreaktion und die Aldehydnatur des Holzes.' — A. L. Grönwall, 'Ueber die Stellung der männlichen Blüten bei den *Orthotrichum*-Arten.' — T. M. Fries, 'Einige Bemerkungen über die Gattung *Pilophorus*.'—R. Jungner, 'Ueber die Anatomie der Dioscoreaceen.'—(No. 24). J. Eriksson, 'Fungi parasitici scandinavici exsiccati' (*Haplobasidion*, gen. nov.). — Id., 'Eine neue Fahnenhafer-varietät' (*Avena orientalis* var. *turgida*). — (No. 25). A. Richter, '*Rubus Fabryi*, sp. n., & *Rosa subduplicata* var. nov. *albiflora*.'

*Bot. Gazette* (May). — M. S. Bebb, 'Notes on N. American Willows.' — W. H. Weed, 'The Diatom Marshes and Diatom Beds of the Yellowstone National Park.' — C. Robertson, 'Flowers and Insects.'—B. D. Halsted, '*Dicentra* stigmas and stamens.'

*Bot. Zeitung* (Nos. 21–23).— A. Meyer, 'Ueber die Entstehung der Schiedewände in dem sekretführenden, plasmafreien Intercellularraume der Vittæ der Umbelliferen' (1 plate). —(No. 24). F. Noack, 'Ueber un Korhizenbildende Pilze' (1 plate).

*Bull. Soc. Bot. France* (xxxvi.: Comptes-rendus 2: June 1).— D. Clos, '*Stachys ambigua*.'—H. Jumelle, 'Marche de l'accroissement en poids des différents membres d'une plante annuelle.' — M.

Devaux, 'Sur quelques modifications singulières observées sur les racines de graminées croissant dans l'eau.'— L. Daniel, 'Structure anatomique comparée de la feuille et des folioles de l'involucre dans les Corymbifères. — A. Letourneux, 'Sur une voyage botanique à Tripoli de Barbarie.' — E. Cosson, 'Plantæ in Cyrenaica et agro Tripolitano à cl. J. Daveau lectæ' (*Tunica Davæana, Hypericum Decaisneanum, Teucrium Davæanum*, spp. nn.). — R. Blondel, 'Sur le parfum et son mode de production chez les Roses.'

*Bull. Torrey Bot. Club* (June).— E. R. Drew, 'Botany of Humboldt County, California' (*Lupinus adsurgens, L. sylvestris, Hosackia denticulata, Potentilla laxiflora, Epilobium exaltatum, Hemizonia scabrella, Scorzonella arguta, Eriogonum speciosum, Euphorbia occidentalis, Allium stenanthum*, spp. nn.).—N. L. Britton, 'Enumeration of Rusby's S. American Plants' (*Sida Benensis, Wissadula andina, Helicteres Rusbyi, Buettneria pescapræifolia, B. Benensis, B. Boliviana, B. coriacea, Mollia Boliviana, Oxalis Boliviana, O. andina, Brunellia Oliverii*, spp. nn.). — G. N. Best, 'On the Group *Carolinæ* of the genus *Rosa*.'

*Gardeners' Chronicle* (June 8). — W. G. Smith, 'Disease of Daffodils' (*Puccinia Schroeteri:* fig. 118).—E. Bonavia, '*Iris iberica*.' —(June 15). *Amorphophallus Titanum* (figs. 119, 120).—(June 22). *Dendrobium chrysolabrum* Rolfe, n. sp. — (June 29). *Dendrobium Fairfaxii* Rolfe, *Zygopetalum lucidum* Rolfe, spp. nn.—W. G. Smith, 'Disease of Lilies' (*Polyactis cana*).

*Journal de Botanique* (June 1). — G. Lagerheim, 'Sur un nouveau genre d'Urédinées' (*Rostrupia*). — A. G. Garcin, 'Sur le pigment de l'*Euglena sanguinea*.' — P. Hariot, 'Algues recueillies à l'île Moquilon.'—P. Maury, 'Plantes du Haut-Orénoque' (*Scirpus Gaillardii, S. aturensis, S. radiciflorus*, spp. nn.).

*Journ. Linn. Soc.* (xxiv.: No. 170: June 8). — G. Massee, 'Monograph of *Thelephoreæ*, part i.' (3 plates: *Asterostemma*, gen. nov., many new species). — H. Bolus, 'Contributions to S. African Botany, part iv.: with a revised list of extra-tropical S. African Orchids' (*Sphæralcea pannosa, Hermannia cristata, Pelargonium leptopodium, P. Macowani, P. gramineum, Lotononis filifolia, L. longiflora, L. namaquensis, Aspalathus leptoptera, A. humilis, Argyrolobium marginatum, Lonchocarpus speciosus, Cliffortia pilifera, Pharnaceum obovatum, Microloma namaquense, Angræcum tricuspe, Habenaria anguiceps, H. involuta, H. Tysoni, H. porrecta, H. Rehmanni, Holothrix multisecta, Disa oreophila, D. caffra, D. Tysoni, D. stenoglossa, D. Baurii, Corycium tricuspidatum, Pterygodium hastatum*, spp. nn.).

*Journ. Royal Microscopical Soc.* (June). — G. Massee, 'Revision of *Trichiaceæ* (3 plates).

*Oesterr. Bot. Zeitschrift* (June).—L. Celakovský, 'Ueber *Potentilla Lindackeri* Tausch. & *P. radiata* Lehm.'—G. R. Beck, 'Trichome in Trichomen.'—C. Lippitsch, 'Ueber das Einreissen der Laubblätter der Musaceen und einiger verwandter Pflanzen.' — E. Woloszczak, 'Das Artenrecht der *Soldanella hungarica*.' — K. Vandas, 'Beiträge zur Kenntniss der Flora von Süd-Hercegovina' (*Celtis betulæfolia*, sp. n.).

*Science Gossip* (June).—W. Roberts, Biography of John Ralfs.

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## *LINNEAN SOCIETY OF LONDON.*

*June* 6, 1889.—Mr. Carruthers, F.R.S., President, in the chair. —Dr. John Anderson, Mr. J. G. Baker, Dr. Braithwaite, and Mr. F. Crisp were nominated Vice-Presidents. Mr. Digby S. W. Nicholl was admitted a Fellow, and the following were elected: The Rt. Hon. the Marquis of Lothian, Messrs. W. Williams, C. S. Wild, and W. Schaus. — Mr. Narracott exhibited a singular fasciated growth of *Ranunculus acris*, found at Castlebar Hill, Ealing.—Dr. Cogswell showed some examples of Jerusalem Artichoke and Potatoe to illustrate the spiral development of the shoots from right to left. — Mr. Clement Reid exhibited several specimens of fossil plants from a newly-discovered Pleistocene Deposit at South Cross, Southelmham, near Harleston.—Mr. D. Morris exhibited specimens of the fruit of *Sideroxylon dulciferum*, the so-called "miraculous berry" of West Africa, belonging to the *Sapotaceæ*. Covered externally with a soft sweet pulp, it imparts to the palate a sensation which renders it possible to partake of sour substances, and even of tartaric acid, lime-juice, and vinegar, and to give them a flavour of absolute sweetness. The fruit of Thaumatococcus (*Phrynium Danielli*), possessing similar properties, was also shown, and living plants of both had lately been received at Kew from Lagos, through Governor Moloney.—Mr. Thomas Christy exhibited growing plants of *Antiaris toxicaria* (the Upas tree) and *Strophanthus Kombe*, both of them poisonous, to show the similarity of the foliage. —On behalf of Dr. Buchanan White, a paper was then read by Mr. B. D. Jackson, entitled 'A Revision of the British Willows.'

*June* 20. — Mr. Carruthers, F.R.S., President, in the chair. — Messrs. A. Denny, R. Miller Christy, and John Fraser were elected Fellows.—Dr. H. Trimen exhibited specimens and drawings of the Tuberculated Lime of Ceylon.—Governor Moloney, of the Colony of Lagos, W. Africa, exhibited a remarkably large block of resinous gum, which, in the opinion of Prof. Oliver, was referable to some species of *Daniellia*, and which had been found in Ijo country. As an article of commerce it possessed the advantage of requiring a heat of 600° F. to "run" it so as to unite with linseed oil in the manufacture of varnish. — A communication was read from Mr. Charles Packe on a remarkable case of prolonged vitality in a Fritillary bulb.

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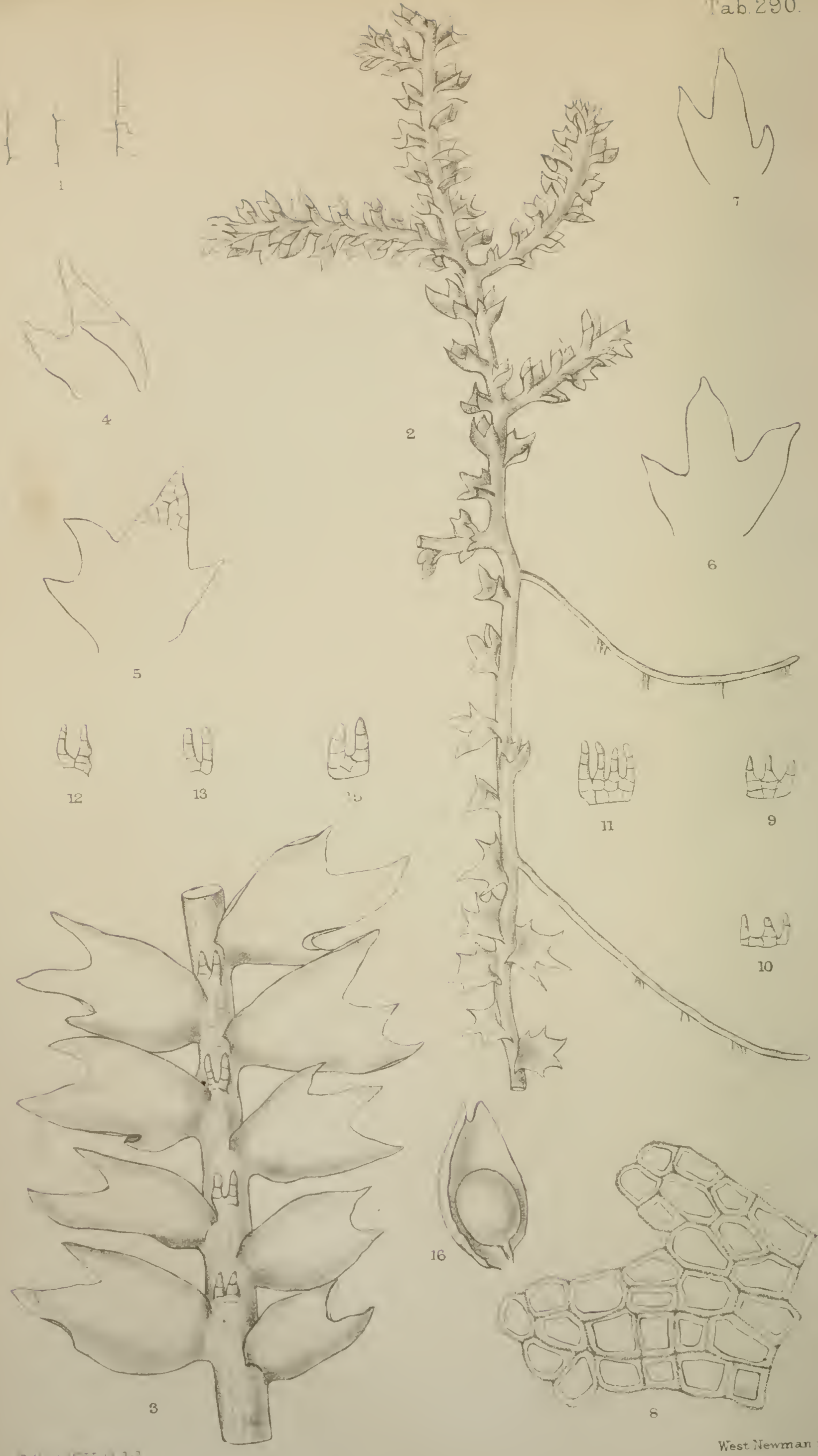
We note with pleasure that Mr. G. C. Druce has received the degree of M.A. from the University of Oxford, and Mr. F. W. Burbidge the same honour from Trinity College, Dublin; and that Mr. W. B. Hemsley has been elected a Fellow of the Royal Society.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R.C. et W.H.P. del.
R. Morgan lith.

West Newman imp.

Lepidozia reversa

# A NEW HEPATIC.

By Dr. B. Carrington and W. H. Pearson.

(Plate 290.)

**Lepidozia reversa**, n. sp. — Loosely creeping, pale olive to dull brown; flagelliferous; flagella postical, leafless, slightly radicellose; rootlets sparing, delicate, hyaline. Stems ½–¾ in. long, rigid, brittle, 4–5 cells in diam., cortical cells 10, equal in size to the inner ones; irregularly pinnate, branches lateral, distant, alternate, of various lengths. Leaves *succubous*, obliquely inserted, patent-divergent (70°), roundish or obovate, palmate, 3–5-fid to about the middle, contracted at the base, segments lanceolate, acute, the outer ones narrower and shorter, 3–4 cells broad at the base, branch leaves approximate, trifid or bifid; leaf-cells thick-walled, 4–5 and 6-sided, chlorophyllose. Under-leaves much smaller, not so broad as the stem, free, subquadrate, divided to below the middle into 2–4 subulate segments of equal size, composed of 2–3 single cells. Inflorescence dioicous. Involucre on short, postical branch (the only two seen were young and imperfect). Andrœcia on short, proper, postical branches (3–4 pairs of leaves); leaves broadly ovate, shallowly bifid; antheridia single, oval.

Measurements.—Stem, ·075 to ·125 mm. diam.; leaves, ·3 × ·3 mm., ·275 × ·275, ·25 × ·25, ·35 × ·25 mm.; segments of leaves, ·175, ·1, ·15 mm.; cells, ·03 × ·02, ·025 × ·025 mm.; under-leaves, ·075 high × ·1 mm. broad, ·05 × ·075 mm.; segments of under-leaves, ·035 mm.; antheridia, ·15 × ·1 mm.

Obs.—Whether the present species is a *Lepidozia*, or the type of a new genus, it would be premature to decide; there can be no doubt that it occupies an unique position among the *Lepidoziæ*, in which all the species at present known have leaves with either incubous or transverse insertions. In the present species they are undoubtedly succubous, thus confirming the opinion of Dr. Spruce that this character cannot be deemed of generic or tribal importance.

Hab.—Growing on rotten wood and earth, intermingled with other species, Sandy Creek, near Beenleigh, Queensland, collected by Mr. C. A. Wild, May, 1887. In springs, Robertson River, Queensland (Herb. Stephani).

Description of Plate 290.—Fig. 1, Plants, nat. size; 2, plant, antical view, × 24; 3, portion of branch, postical view, × 85; 4—7, leaves, × 85; 8, portion of leaf, × 290; 9, 10, 11, stem under-leaves, × 85; 12—15, branch under-leaves, × 85; 16, perigonial leaf, with antheridium, × 85.

# ON SOME BRITISH *VIOLA* FORMS.

By W. H. Beeby, A.L.S.

The ill-defined position of *Viola lactea* Smith, var. *intermedia* Watson, which has been commented upon by various writers, was first made specially evident to myself on becoming acquainted with that form and typical *V. lactea* as natives of Surrey some six years ago. The wish to learn something more about this form led eventually to a series of observations on the plant, both in the wild state and under cultivation. At the same time various other forms have been studied and cultivated, and help has been derived from the excellent Fasciculus (I.) of 'Violæ Sueciæ Exsicc.' issued by Neuman, Wahlstedt, and Murbeck (Lund, 1886), and by correspondence with some of the authors of the same. I have thought that it may be worth while to record the result of these observations; for although most of the forms mentioned are Surrey plants, they have also, for the most part, a wide range in Britain.

The group now dealt with embraces *Viola Riviniana*, *silvestris* (*Reichenbachiana*), *canina*, *lactea*, *stagnina*, and their hybrids; remarks on the *odorato-hirta* alliance are deferred for the present.

Viola Riviniana Reich.—This variable species is represented, in the above-mentioned Fasciculus, by two varieties (besides the typical), both of which are found in Britain. The var. *villosa* N. W. & M. is a form in which the peduncles, petioles, and stems are more or less pubescent; scattered individuals occur occasionally growing with the type, with which it is connected by intermediates. —Surrey!; Bucks, *G. Nicholson*!

Var. *nemorosa* N. W. & M. — This rather marked variety is a large-flowered, late-flowering woodland plant, with somewhat narrow petals and a coloured corolla-spur; as remarked by the authors of the name, it shows some approach to *V. silvestris;* but the spur is deeply notched at the apex, and the sepal appendages are conspicuous. — Surrey!, where it seems to be confined to the Lower Greensand. It is quite a different plant from the large and round-flowered form of our chalk copses, which also occurs on the Lower Greensand.

V. Riviniana × silvestris. — This hybrid is recognised by the Swedish botanists, and although it is a form I have not had under cultivation, I do not hesitate to accept Herr Murbeck's determinations, which in various other critical cases have been confirmed by observations and experiments.—Surrey!, with the two parents.

V. silvestris Reich.—I have not always found this plant and *V. Riviniana* so easily separable as are *V. canina* and *V. lactea*, except when in ripe fruit; but this is probably owing in some measure to the fact that less close attention has been given to them than to the two latter species. There are no varieties to record; a form with pure white flowers occurs in Surrey.

V. Riviniana × canina.—My cultivated plant—now a large one—of this hybrid tends towards *canina* in general habit, the barren rosette being absent; the leaves, however, are almost those of *Riviniana* as to form, but with the colour and texture of *canina*. Totally sterile in the wild state, it has remained so for two seasons in the Reigate garden. In the spring of the current year I noticed a fine capsule growing among the numerous sterile flowers; when going to examine this capsule to see whether it contained seed, in the middle of June, it was at once seen, from the foliage, that the capsule was not borne by the hybrid, but by another plant which had grown up in the middle of it. In order to prove this beyond doubt, the two plants were dug up and carefully separated. The new plant was a young example of *V. Riviniana*; in fact, a seedling, with the usual sterile rosette and two branches, each of which bore a single capsule. I mention this particularly, because it shows that the sterility of the hybrid had no connection with its situation; and also that the visits to it of fertilising insects were not wanting, as it is not conceivable that an insect should visit these two (the only) flowers borne by the *Riviniana* plant, without visiting some of the numerous flowers of the hybrid which apparently proceeded from the same plant. — Surrey, several localities!; Sussex, E.!; Kent W., *G. Nicholson*!

V. CANINA Reich.—Apparently this plant should bear the name of *V. flavicornis* Smith, who separated it from the *sylvatica* aggregate; but the examination of this point is incomplete. I am unable to separate vars. *flavicornis* Sm. and *ericetorum* Reich., except in their extremes; they seem to be states due to situation, and to pass into each other. The *flavicornis* is a plant of heaths and commons where the peat is close and compact, with a fine short growth of herbage. The var. *flavicornis*, No. 22 of the Fasciculus, from the habitat "campus militibus exercentibus," is evidently from a locality such as that just described; it is called "f. *simplex*"; but the numerous specimens are all of them *pieces* of plants; if a plant be dug up, and the hard peat carefully picked out (not an easy task), several of these apparently simple pieces will be found to be united by their rootstock into a single plant, branching below the soil much in the usual way. The var. *lucorum* Reich. I know only by a specimen from Cambs., leg. A. Fryer, determined by Herr Murbeck. The appearance of this plant conveys to me the impression that it is a state due to situation, rather than a well-marked variety. The var. *crassifolia* Grönvall is a fine, thick, and somewhat fleshy-leaved large-flowered plant; yet it, too, passes gradually into the usual fenland plant, which is itself a more robust form than that usually found in the southern counties.—Cambridgeshire, *A. Fryer*!

V. LACTEA × CANINA (*V. lactea* var. *intermedia* Wats.).—From studying this plant in its native habitat, and comparing the plants with *V. lactea* and *V. canina*, which grow with it, I early came to the conclusion that it was a hybrid between these two; and this conclusion has since been amply confirmed by many observations. This plant has somewhat the aspect of *V. canina* var. *lucorum*; indeed, that name has on one occasion been applied to it. Observing it to be seemingly sterile, attention was directed to that point in 1886 and 1887, the wild plants being examined at various different seasons; but not a single capsule was found either as the result of the ordinary, or of the later, micropetalous flowers. Twice, also, in one of those years, I examined a plant I had given to Mr. Arthur Bennett, and which has been growing in his garden since 1883, with the same result. I have also grown the plant at Reigate for several years. Not only is no seed produced, but among the many hundreds of flowers I have examined, I have not seen a single instance in which the capsule had begun to swell. That frequent concomitant of sterile hybrids—an abnormally-developed vegetative activity—is seen in this plant in a marked degree, as indeed it is in all those *Viola* hybrids I have had the opportunity of observing. One plant was a beautiful sight, producing somewhere about 100 stems, and forming literally a small bush, covered with pale blue blossoms. I took some 60 flowering stems from this plant, leaving some 30 or 40 remaining for the purpose of testing it as to sterility. This was, of course, a somewhat exceptional plant, growing in a favoured position; but where the plant grows side by side with *lactea* in a less sheltered position, the same difference of habit is present, though less strongly marked.

V. LACTEA Smith.—Mr. Archer Briggs ('Fl. Plymouth,' p. 41) is disposed to regard this as a variety of *V. canina*. If my statement as to the probable origin of the var. *intermedia* commends itself to that gentleman, I believe that he, and those who think with him on this point, will no longer find great difficulty in recognising the two as distinct species. There are several minor but constant characters which separate the two; then, *V. lactea* is not a Scandinavian plant; and although *V. canina* is a variable species in that region, yet none of its Scandinavian forms show any particular approach to *V. lactea*.

V. CANINA × STAGNINA.—In 1885 Mr. Alfred Fryer sent me a handsome *Viola* from Key's Corner, Chatteris, Cambs., to which was appended the following note:—"Probably a new species to Britain." I identified this plant as being, to the best of my belief, *V. stricta* Koch Syn., and subsequently sent specimens to Dr. Nordstedt, who kindly passed them on to Herr Murbeck, with whom at that time I was not acquainted. The latter reported to the effect that the plant was the hybrid *V. canina* × *stagnina*, the *V. stricta* of Koch in part; but that the latter probably included other hybrids of *canina*. In the Fasciculus the synonymy "*V. stricta* Wimm., Koch, &c.," is given; and it may be added that it is the *V. stricta* of Nyman Consp., at least in part, but not of Hornemann. Since that time I have, by Mr. Fryer's kindness, received many examples of the fenland plant, which is certainly identical with the Swedish, of which I also possess a good series. Specimens were sent to the Botanical Exchange Club, and were referred (see 1885 Report) to *V. lactea* by Prof. Babington. Mr. Fryer also informs me that it is the usual "*lactea*" of the Fens. The plant in question in reality bears but small resemblance to typical *V. lactea*, which has leaves truncate or even wedge-shaped at the base; while in this hybrid, besides being of a different shape, they are more deeply cordate than in ordinary *canina*. The flowers and stipules are also very different. The leaves of the "*lactea* var. *intermedia*" do, however, bear some resemblance to those of the fen plant, and it will be borne in mind that Prof. Babington does not separate typical *V. lactea* from the "var. *intermedia*." I have little doubt myself as to the hybrid origin of this plant; Mr. Fryer believes that it is sterile, but feels some doubt as to its origin on grounds connected with the relative distribution of the three forms. In a paper on "Några Viola-hybriditeter för svenska Floran" ('Bot. Notiser,' 1884, p. 144), Dr. L. J. Wahlstedt writes concerning this plant to the following effect:—What most characterises its hybridity and displays its hybrid origin is the bad quality of the pollen, of which from 80 to 95 per cent. consists of small, empty and quite useless grains. The pistil appears also to be constantly sterile, whereas mature fruit is wanting.—It is interesting to find that a high vegetative activity is also a characteristic of this hybrid, for the following note is appended to the examples numbered 28 in the Fasciculus:—"All the specimens distributed were gathered from two tufts."—Hunts and Cambs., *A. Fryer*!

The plants grown at Reigate are *Viola Riviniana, silvestris, canina*, and *lactea; V. Riviniana* × *canina* and *V. lactea* × *canina*. The four species seed freely in both the wild and cultivated state; the two hybrids are not known by me to have produced a single seed. I hope to grow the other hybrids mentioned in this paper, and also to give later the results of investigations now in progress on the *hirta* and *odorata* section. Of those at present noted in Surrey, two forms are, I believe, hybrids *V. odorata* × *hirta*, tending respectively towards one or other parent; one form is probably a distinct subspecies of *odorata;* and one or two others may be varieties of *V. hirta*. In *V. hirta* and its allies the leaves are not developed at flowering time, and it is absolutely necessary for determination to collect also later specimens bearing full-grown leaves and ripe capsules. For the proper understanding of these forms it is as essential that they be collected at two different seasons as it is in *Potamogeton* or in *Salix*.

## NOTES ON HIGHLAND PLANTS.

By the Rev. E. S. Marshall, M.A., F.L.S.

The following remarks refer to a three weeks' stay in Scotland, from June 19th to July 12th of last year, with occasional references to plants observed in former years. Several interesting things were met with; but, owing to the early date of my visit, the sedges were in many cases too young for satisfactory determination. *Hieracia* were also to a large extent found in bud only; but four or five forms were secured which may perhaps prove new to this country. I may mention that three of these, from Argyleshire, are very near specimens in Dr. Lindeberg's Scandinavian 'Exsiccata' of *H. cæsium* var. *alpestre*, *H. submurorum*, and *H. saxifragum* var. *nemorosum*, as far as appearance goes. But specimens have not yet been seen by that authority, and I hope to gather the plants in question again this season. A very enjoyable day was spent in walking from Dunkeld to Ballinluig with Dr. Buchanan White, who showed me several interesting *Salices*, besides other rarities. Some hours of very hot sunshine near Dalnaspidal proved rather unproductive. The next halting-place was Fort William; one day being devoted to walking five miles up Glen Nevis, and working part of the northern corrie of Stob Ban; another to an examination of the east flank of Ben Nevis; and a third (which yielded little but a long climb) to searching the stream in Upper Glen Nevis, as far as "Steall"; then turning northwards, ascending the ridge of Carn Dearg, and skirting the eastern side of Ben Nevis. Some good *Hieracia* of the *alpinum* and *nigrescens* sections will be met with on the crags by a July visitor. Thence I moved to Kingshouse, Glencoe, a very wild spot, but apparently a good centre for field-work (the deer-forests, however, are strictly preserved). Three half-days here yielded some new records for the flora of Argyle. From Tyndrum, a short ascent of Beinn-dubh-chraige was made, and a little was also done on the north-east side of Am Binnein, the southern peak of Ben More, descending on the Luib side. The remainder of the time was spent at Clova, where inclement weather and the present difficulty of access to some of the best ground interfered a good deal with one's enjoyment.

The vice-counties visited were Mid-Perth (88), Forfar (90), W. Inverness (97), and Argyle (98). Plants marked * are believed to be new to the vice-county mentioned; those marked † do not seem to have been before recorded as British. I wish to apologise beforehand for any inadvertent claim to a record already anticipated; in any case, there is some advantage in the confirmation thus furnished. As before, the greatest help has been given to me by Mr. Arthur Bennett. Mr. F. J. Hanbury has looked over the hawkweeds, and Dr. Buchanan White has seen several of the willows. Prof. Babington kindly examined and annotated a number of doubtful specimens. My thanks are also due to Prof. E. Hackel, Messrs. J. G. Baker, Beeby, C. B. Clarke, Druce, E. F. Linton, and the staff of the Botanical Department at S. Kensington.

†*Ranunculus Flammula* L., var. *petiolaris* Lange ined. Shore of Lochan Mathair Etive, near Kingshouse (98). This has also been sent to me (in fruit) from Sligachan, Skye, by the Rev. E. F. Linton. Dr. Lange gave the following description:—"Erecta, foliis inferioribus in petiolum longissimum anguste linearem reductis, superioribus linearibus vel e petiolo longo angustissime spathulatis, obtusis, integerrimis, floribus majoribus quam in typo, saliente luteis." I do not think that the blossoms are larger than common in Britain. The stems show a remarkable zigzag tendency; the root-leaves are mostly rather curved, and very brittle, somewhat resembling those of *Littorella* in appearance, when fresh. I sent home several roots, which have shown some slight tendency towards reversion to the type, but have kept much of their distinct habit under greatly altered conditions. At first I believed this plant to be a distinct species, and Dr. Lange also expressed some doubt in

referring it here; but the fruit seems typical. Still, it is a very marked form, and quite constant in its native station. — *R. auricomus* L. Ascends to fully 2000 ft. in Corrie Winter, Clova. No personal authority for 90.

*Caltha palustris* L. On Clach Leathad, Kingshouse, I found the type ascending to 2500 ft., associated with var. *minor*.

**Fumaria densiflora* DC. Railway-bank near Ballinluig Station (89). Just inside E. Perth. Casual only.

*Arabis sagittata* DC. The alpine state of this, about Clova (*e. g.* at the head of Glen Doll, and the Falls of the Unich), bears some superficial resemblance to *A. ciliata*, and is doubtless the plant recorded under that name by G. Don, as Watson suggests.

*Cardamine pratensis* L. A state with very large leaflets occurs near Dalnaspidal; it did not fruit, and has produced double flowers in cultivation. — **C. flexuosa* With. Near Fort William (97). It ascends to 2000 ft. near Clova.

*Cochlearia grœnlandica* L. (non Sm.). I believe that a plant gathered by me in fruit, high up on Ben Lawers, in 1887, is referable to this species. It has flowered well in the garden, both this year and last, and has not in the least lost its dwarf, compact, very distinct habit. The radical leaves are small, very numerous, on foot-stalks from ½–1 in. long, ascending, entire or with one or two obsolete teeth on either side; flowers much the same as in *alpina* Wats. The seedlings are equally typical. I have before seen it somewhere suggested that *C. arctica* Schlecht. was the true name for this Ben Lawers form; and that is apparently a synonym. Slugs are so fond of these plants that I have failed to get ripe fruit. The pouches in my herbarium specimens are longer than those of *alpina*, which appear to be subglobose. That plant has also a straggling habit, and is on a larger scale.—**C. danica* L. Summit of the Little Culrannoch (90). This appeared to me very different from all "*alpina*" that I had seen before, and Dr. Lange names it as above; a determination assented to by Prof. Babington. It seems to be a biennial, plants sent home having died before the approach of winter; whereas *alpina* survived, and is still quite vigorous. The appearance is decidedly towards *danica;* and I suspect that the "*alpina*" of the Teesdale meadows, which seems to die after fruiting, would be equally so named by Dr. Lange. The occurrence of this species at such an altitude is not in itself at all improbable, though in Britain, at least, it has hitherto been regarded as exclusively a coast-plant.

**Subularia aquatica* L. In Lochan Mathair Etive (98); abundant.

**Cerastium arcticum* Lange. E. side of Ben Nevis (97), among loose stones, at over 2500 ft.

*Stellaria Holostea* L. Ascends to quite 2000 ft., near Clova.

**Sagina Linnæi* Presl. Clach Leathad (98).

**Rosa mollis* Sm. (*fide* Baker). Above Braedownie, at the entrance to Glen Doll (90); both white and pink-flowered.

*Saxifraga rivularis* L. was already flowering upon Ben Nevis on June 23rd.— *S. sponhemica* Gmel. This is certainly a very protean species. Mr. Baker remarked on a bright green, densely-tufted plant from Ben More (88), at fully 3000 ft., with shorter scapes, and broader, yellower petals than usual:—"A form of *sponhemica* approaching *cæspitosa*, and not typical *sponhemica*.'

**Myrrhis odorata* Scop. By the Nevis Water, about two miles above Fort William (97); a very doubtful native here.

*Matricaria inodora* L. Prof. Babington writes of the Dunnet Links form:—"I do not consider this *salina*, but join it with Ruprecht's plant, *phæocephala*." Yet it does not closely resemble that from Durness, so named by Dr. Lange, having shorter peduncles, less showy heads, with narrower, more numerous ray-florets; leaflets shorter, and quite twice as broad. Of the latter example Prof. Babington says:—"It is *phæocephala* (Rupr. Symb. Fl. Ross. 42), which I have mistakenly called *maritima*. I have it from Orkney and Shetland, but poor specimens. It is the c. *maritima* of Lond. Cat." But as I write, there is lying before me a third specimen, collected on the sand-hills at Ackergill, near Wick, in 1886, with Messrs. Grant and Hanbury, which clearly cannot come under either *salina* or *phæocephala*, and is, I quite believe, the true *M. maritima* L., its whole aspect being different from that of any *M. inodora* I ever saw. The rootstock is woody, apparently perennial, clothed at the crown with dead leaf-bases; the stem branched only from above the middle, nearly naked below; the large, solitary heads borne on widely-spreading peduncles, from 3–4½ in. long. It appears to tally with Linné's description:—"Receptaculis hemisphæricis, foliis bipinnatis subcarnosis, supra convexis, subtus carinatis," as well as with Nyman's comment:—"Habitus proprius. Folior. segmenta divaricata, crassa, latiuscula" (Consp. p. 374). Having seen no type-specimens, I cannot, however, feel more than a moral certainty upon this point.

**Hieracium melanocephalum* Tausch. Clach Leathad, near Kingshouse (98). — *H. eximium* Backh. Clach Leathad (98). I am not certain whether type or b. *tenellum*. — *H. calenduliflorum* Backh. I am glad to be able to verify my last year's record of this from Stob Ban (97). A seedling from the same mountain has recently blossomed in the garden, and I also appear to have sent it thence to Mr. Hanbury. — **H. lingulatum* Backh. Clach Leathad (98), sparingly, with *yellow* styles, but otherwise quite typical. — *H. argenteum* Fr. Glen Nevis (*97), at 750 ft.; streamlet on Clach Leathad (*98), at 1200 ft. Very frequent about Clova. — **H. aggregatum* Backh. Mr. Hanbury writes that two young plants sent from Stob Ban, Glen Nevis (97), and grown on, have proved to be this, quite typical; it is an interesting addition.—*H. vulgatum* Fr. Glen Nevis (*97). Kingshouse (*98).— *H. auratum* Fr. By the Tay, between Dunkeld and Ballinluig (88). Glen Nevis (*97), plentifully. Near the Doll Shooting-lodge, Clova (*90). This, apparently Backhouse's "*rigidum*," is clearly quite one of the commonest accipitrine hawkweeds in Scotland. The plants reported by me last year from Lawers and Glen Nevis as "*H. Eupatorium*" (*corymbosum*) have been placed here by Dr. Lindeberg, as well as one from the shore of Loch Awe (98), very near Mr. Druce's Kilchurn Castle station.

*Taraxacum officinale* Web., d. *udum* (Jord.). Streamlet descending from Am Binnein (88), at 2000 ft. Glen Fiagh (90), as well as var. *palustre*.

*Campanula rotundifolia* L., b. *lancifolia* Koch. The plant from Meall Garbh, Lawers, mentioned in last year's paper, has since been sent to Prof. Babington, who remarks:—"This is probably the *arctica* of Fl. Dan. 2711."

*Primula vulgaris* Huds. I found a plant in flower upon Ben Nevis, at nearly 2000 ft., on June 23rd.

*Veronica serpyllifolia* L., b. *humifusa* (Dicks.). This appears to be a common, but early-blooming form. I met with it in profusion on most of the mountains visited, and it occurs on Am Binnein with pure white flowers.

*Melampyrum pratense* L., d. *montanum* Johnst. This seems to be the usual state of the plant, above 1500 ft. I met with it on Ben Nevis, Clach Leathad, and several of the Clova hills. It is markedly hispid, and has the corolla-lips open, not closed, as in the type; the flowers are often beautifully streaked with rose-red. A form from Loch Wharrul, differing only by its closed corolla-lips, is placed by Mr. Druce between this and the type.

*Rhinanthus minor* Ehrh. A curious state occurs on the stony path in Glen Doll, with flowers of a dull treacly brown.

*Utricularia Bremii* Heer? In 1887 I met with a bladderwort in Lochan Feoir, Assynt (108 W. Sutherland), which deserves further examination. It differs from *minor* in being stouter, stiffer, brighter green, and with larger bladders. *U. neglecta* was suggested by a friend, but he has since withdrawn this, and considers that it cannot be referred to any of our recognised species, except *Bremii*. Any botanist visiting Inchnadamph would do well to further investigate this striking form. I could find no trace of flowers, but my visit was late (Sept. 14th).

†*Pinguicula vulgaris* L., var. *bicolor* Nordst. E. side of Ben Nevis, at about 1800–2000 ft., in a small heathy bog. The description in Hartm. Handb. Skand. Flora, ed. 1870, i. 70, is:—"Kronan violett med hvit lapp"; and the localities there given are:—"Lulea & Lappmark; Stenbäcken mell. Jokmokk och Pajarim. *Linn. Fl. Lapp.* Westergothland: Sandhem . . . *O. Nordst.*" [I do not possess this work, and cannot quite decipher the extract kindly sent me by a friend.] Linné, *l. c.*, says:—"Var. speciosam hujus speciei corolla violacea, labiis albis, observavimus in deserto Lulensi . . ." I have not seen specimens; but these plants dry so indifferently that they would probably be of little use, unless fresh. In my specimens the throat and spur were deep violet-blue; the lips white, or *very* faintly tinged with lilac; the corolla being much flattened horizontally and not gaping, as in the typical form. Apparently it was scarce, and restricted to a small area; but, as the discovery was made at about 10 p.m., I had little chance of making a prolonged search. The white hue is lost in drying, though the contrast in depth of colouring remains well marked.

*Scleranthus annuus* L., b. *biennis* (Reut.) was plentiful in a sandy field between the river and the railway, a mile or two above Dunkeld.

*Betula odorata* Bechst. (*glutinosa* Fr.), var. *parvifolia* (Wimm.) Regel. So Dr. Lange names specimens from Stob Ban (97), Clach Leathad (*98), and the stream descending from Ben More towards Luib (*88). All these agree well in leaf-characters with Reichenbach's figure of *sudetica*, which is a synonym; the leaves are strongly cuneate below. They differ widely in appearance from the Loch Hope plant which Dr. Lange determined to be this, "going off in the direction of *B. alpestris*." But the last-named seems to Prof. Babington rather a form of *B. intermedia*, of which, unfortunately, I have seen no very satisfactory specimens. It certainly looks much nearer to Reichenbach's figure of *intermedia* than of *sudetica*, and approaches closely to the Glen Callater tree found by Mr. Hanbury and myself in 1886. I carefully compared them both with the plate, and do not see why the name should not stand. Prof. Babington is one of the few British botanists who have seen *B. intermedia* growing in quantity. He also refers to it a specimen from the N.E. slope of Stob Ban (97), with more elongate leaves, deeply and rather distantly serrate-toothed. — †Var. *carpathica* (Wald. & Kit.) Regel. Streamlet in Glen Nevis (97); stream on the Luib side of Ben More (88); ledges on the S. side of Glen Fiagh (90). Also determined by Dr. Lange, and seeming to correspond with Reichenbach's figure. The leaves are mostly broad-based, not cuneate below, shining on their upper surface; buds resinous; bark nearly black; branches tortuous, whereas those of var. *parvifolia* are straight. I was too early to get mature catkins. Probably both these forms will prove to be common enough. The study of our birches has hitherto been much neglected, owing to the difficulty of getting them properly determined. — **B. nana* L. Moorland by Lochan Mathair Etive, Kingshouse (98), at a height of only 970 ft. above sea-level.

*Salix aurita* L., b. *minor* Sonder. Stream descending from the E. side of Ben More, above 2000 ft.: associated with a beautiful dwarf form of *S. phylicifolia*, probably var. *Davalliana*. — *S. Lapponum* L. Streamlet on Clach Leathad (98). In the 'Student's Flora' it is mentioned as growing in Argyle, but that is not one of the counties enumerated for it by Watson. — b. *Stuartiana* (Sm.) appears to be little less common around Clova than the more general form *arenaria*. — *S. cinerea-repens* Wimm. Dr. Buchanan White thus names a willow from the coast at Melvich, W. Sutherland, found in 1886 by Mr. Hanbury and myself, and referred at the time to a very large-leaved state of *repens*. — *S. Myrsinites* × *nigricans* is another identification of his. I believe the locality to have been Corrie Ceannder, S. Aberdeen; but the specimens have not yet returned to me. Mr. Arthur Bennett had suggested this name for a plant from thence, some time back. — †*S. herbacea* × *Lapponum*. Cliffs of Glen Fiagh (90). This conclusion was arrived at independently both by Dr. White and myself. I have just learnt from the Rev. E. F. Linton that he and his brother had twice previously gathered, in a neighbouring corrie, what appeared to them to be the above hybrid, though it had never been positively ascertained, owing to insufficient material. I believe that I saw several small barren plants, but only one with capsules. The specimens are not now by me, but no doubt they will be described by Dr. White in the review of the British *Salices* which he has in hand. Though not given in Nyman, he tells me that this plant is in the last Copenhagen list. I may mention that I have two other small plants now growing in my garden, from the same station, which look like hybrids; one, perhaps both, showing *reticulata* parentage. I hope in course of time to get these determined.

*Pinus sylvestris* L. This is certainly native in the upper part of Glen Nevis (97), and apparently so about Inveroran (98). A single specimen also grows on an islet in Lochan Mathair Etive, near Kingshouse: it seems to be a relic of the vast forest which once clothed this part of Rannoch Muir.

*Juncus biglumis* L. In abundance on the N.E. side of Beinn-dubh-chraige, near Tyndrum (88), at about 3000 ft.

*Eriophorum angustifolium* Roth, b. *elatius* Koch. Moor near Kingshouse. — c. *minus* Koch. Stob Ban (97); Glen Fiagh (90). This is exactly the plant figured in Eng. Bot. as "*E. gracile.*" I gathered a single specimen of this species near Kingshouse with somewhat *asperous* peduncles; a similar state has been found in Surrey by Mr. Beeby.

*Carex pulicaris* L. Ascends to nearly 3000 ft. on Beinn-dubh-chraige (88).—*C. echinata* Murr., *b. *Grypus* (Schk.). Streamlet on Clach Leathad (98). Determined by Mr. Bennett, and the character is apparently correct; but plants which flowered in the garden turned into typical *echinata!* [Obs.—Very immature specimens of a *Carex* growing between the summit of the Little Culrannoch and the head of Glen Caness, which appeared to me different from *C. curta* var. *alpicola*, have a decided look of *C. helvola* Blytt, which I have seen from Norway and from Lochnagar (herb. Boswell). I think it better to call attention to the possible occurrence of this species in a new station.] — **C. curta* Good. Glen Nevis (97).—*C. stricta* Good. The Assynt plant which Dr. Lange placed here is named by Prof. C. Haussknecht "*C. vulgaris* Fr., var. *juncella*, forma *melæna*." Prof. Babington also considered it a form of that species. — *C. rigida* Good. Specimens coming very near the Little Culrannoch var. *inferalpina* were collected above the head of Glen Fiagh and on the E. side of the Green Hill, near Clova. It is often extremely difficult to tell whether living plants belong to this species or to the alpine states of *Goodenovii*. — **C. aquatilis* Wahl. Great bog on the E. side of Ben More and Am Binnein (88).—*C. glauca* Murr. A form was met with in Glen Fiagh, which is probably c. *stictocarpa* (Sm.). Don's original station is likely to have been in this neighbourhood.—**C. limosa* L. (*eu-limosa*). Near Lochan Mathair Etive (98), in profusion. — *C. præcox* Jacq. At 2000 ft., in Glen Winter, Clova.— *C. vaginata* Tausch. W. side of the Athole Sow; Am Binnein (88); Stob Ban (*97). Very abundant on Clach Leathad (98).—†*C. intermedia* Miégeville. Moorland a little E. of Bridge of Nevis (97), about a mile from Fort William, and perhaps 100 ft. above sea-level. Dr. Lange, to whom this was sent for identification, thought it to be *C. vaginata;* from which, however, it differed at a glance, when fresh, being glaucous (which seems never to be the case with that species). Mr. C. B. Clarke then kindly looked at specimens, and agreed that they could not come under *vaginata;* adding, "For me, your plant will be a 'subalpine' or 'cold' form of *C. panicea.* In this herbarium I find one plant exceedingly like yours (from the Pyrenees), issued as the type-specimen of '*C. intermedia* Miégeville.' I also find plants near yours marked *C. sparsiflora* Wahl. I do not know that these plants are rightly named *C. sparsiflora:* but all these forms are, in Kew, included in the *C. panicea* bundle." *C. sparsiflora* is described as green, not glaucous, and is generally taken to be a synonym of *vaginata.* Nyman places *C. intermedia* Miégev. under *vulgaris,* which is obviously an error. A root that I sent home has, this season, produced two flowering stems; they have been sent in the fresh state to Mr. Bennett, who writes:—"I have now no doubt it is the *C. intermedia* of Miégeville." I found it in good quantity, over a limited area, associated with *C. panicea,* from which it looks specifically different, being of a more *livid*-glaucous tint, and a perfectly distinct habit, fully maintained, so far, in cultivation. I have not yet had access to the author's description. In height my specimens vary from 4 to 8 in. The male spikelet is rufous, on peduncles ½–¾ in. long; female 1 or (more rarely) 2, the lower peduncled. Fruit (scarcely matured) globose, half the size of that of *panicea;* glumes not so dark. The following remark of Prof. Babington is very suggestive:—"It is not unlike the *phæostachya* (Sm.), as figured in Eng. Bot. Suppl. 2731, which we now put to *vaginata.*" Is it not exceedingly probable that Smith really knew the present plant, and rightly distinguished it from his *C. Mielichoferi* = *vaginata* Tausch.? — *C. flava* L. Two specimens collected beside the White Water in Glen Doll have very tumid fruit, and appear to be the same as a form which Mr. Druce has suggested might be a hybrid with *pulla.* — **C. vesicaria* L. Glen Nevis (97). —*C. pulla* Good. Very luxuriant in the bog on the E. side of Ben More (88); sometimes having four female spikelets. One or two specimens show a decided tendency towards *vesicaria.*

*Deschampsia cæspitosa* Beauv., b. *brevifolia* Parn. From Prof. E. Hackel I learn that this is, as I suspected, a synonym of var. *alpina* Gaud., which, however, he extends to forms that would hardly be included under *brevifolia* by British botanists. — *D. flexuosa* Trim., b. *montana* (Huds.). Clach Leathad (98); Unich Water, above Glen Lee (90).

*Festuca ovina* L., b. *capillata* Hack. Turfy wall-tops, Glen Nevis.

*Equisetum pratense* Ehrh. A decumbent, small state, analogous to the var. *alpinum* of *E. arvense,* is abundant on moist screes in Glen Fiagh.

*Lycopodium alpinum* L., var. *decipiens* Syme. Stob Ban, Glen Nevis (97); Clach Leathad (98). This form is identical with a specimen once sent to me by Mr. Druce as *complanatum,* but looks distinct from a plant met with by Mr. Hanbury and myself in Glen Derry, S. Aberdeen, which may be the right thing.

# CATALOGUE OF THE MARINE ALGÆ OF THE WEST INDIAN REGION.

By George Murray, F.L.S.

(Continued from vol. xxvi., p. 363).

## III.—CHLOROPHYCEÆ.

### Siphoneæ.

Bryopsis ramulosa Mont. Barbadoes, *Dickie*! Cuba, *R. de la Sagra*! Danish West Indian Islands, *Hohenack*! No. 421.
*Geogr. Distr.* Brazil, Africa (Ile de Gorée).

B. Balbisiana Zan. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean and warm coasts of Europe.

B. Harveyana J. Ag. = B. plumosa var. secunda Harv. Florida, *Harvey*.

B. pennata Lam. Guadeloupe, *Mazé*!
*Geogr. Distr.* Brazil, Ceylon.

B. plumosa Huds. Grenada, *Murray*! Barbadoes, *Dickie*! Guadeloupe, *Mazé*! Cuba, *Wright*. Florida, *Harvey*, *Melvill*! Bermuda, *Kemp*, *Rein*.
Var. ramulosa Harv. Guadeloupe, *Mazé*!
Var. densa Harv. Guadeloupe, *Mazé*!
*Geogr. Distr.* Atlantic (North and South), Cape of Good Hope, Australia.

B. thuyoides Kütz. Guadeloupe, *Mazé*!

B. foliosa Sond.? Guadeloupe, *Duchassaing* (*fide Agardh*).
*Geogr. Distr.* Australia.

B. hypnoides Lam. Florida, *Harvey*. Bermuda, *Kemp*.
*Geogr. Distr.* Mediterranean, and warm shores of Europe.

B. arbuscula Lam. Danish West Indian Islands, *Hohenack*! No. 420.

B. Duchassaingii J. Ag. Guadeloupe, *Mazé*!

B. pennulata Liebm. Guadeloupe, *Mazé*!

B. Leprieurii Kütz. Guadeloupe, *Mazé*!

Derbesia tenuissima J. Ag. = D. marina Sol. excl. syn. Bermuda, *Rein*.
*Geogr. Distr.* Mediterranean.

D. vaucheriæformis J. Ag. Florida, *Harvey*! *Melvill*? Bermuda, '*Challenger*'!
*Geogr. Distr.* United States (Atlantic).

Codium adhærens Ag. Guadeloupe, *Mazé*! Bermuda, *Kemp*, '*Challenger*'! omitted from list.
Var. arabicum Crn. Guadeloupe, *Mazé*!
*Geogr. Distr.* Atlantic, Mediterranean, Red Sea and Indian Ocean, Pacific, Australia.

C. Bursa Ag. Bermuda, *Kemp*.
*Geogr. Distr.* Atlantic (Britain to Spain), Mediterranean.

C. tomentosum Ag. Grenada, *Murray*! Barbadoes, *Dickie*! Guadeloupe, *Mazé*! Cuba, *Wright*. Florida, *Harvey*! Bermuda, *Kemp*, *Rein*, '*Challenger*'!

*Geogr. Distr.* General. It should be stated that Agardh (Till. Alg. Syst. viii. p. 40) differs from Harvey and others in regarding specimens from Australia and California as distinct from our *C. tomentosum*. He limits its distribution to the Atlantic from Britain to the Cape, and to the Mediterranean —so far as is known.

C. TENUE Kütz., var. REPENS Crn. Guadeloupe, *Mazé*!
*Geogr. Distr.* Cape of Good Hope, Australia, Indian Ocean, Red Sea.

C. LINEARE Ag. Guadeloupe, *Duchassaing*. Cuba, *Liebman*.
*Geogr. Distr.* Warm Atlantic, Australia.

[Mazé et Schramm ('Algues de la Guadeloupe,' p. 108) cite *C. abbreviatum* Ag. In the almost complete set of their Algæ in the British Museum there is unfortunately no specimen under this name. J. G. Agardh (Till. Alg. Syst. viii. p. 48) remarks that he does not know of any *C. abbreviatum* described either by Agardh or by anyone else. I have searched for the origin of the name in vain. It appears to have arisen by "spontaneous generation."]

AVRAINVILLEA NIGRICANS Decne. Barbadoes, *Dickie*! (*Rhipilia Rawsoni* Dickie). Iles des Saintes (Guadeloupe), *Avrainville*! Guadeloupe, *Mazé*! Bermuda, *Farlow*! (*fide Bornet in lit.*). Santa Cruz (*fide Bornet in lit.*).
*Geogr. Distr.* Brazil.

A. LONGICAULIS G. Murr. et Bood. Antilles, *Sonder*. Grenada, *Murray*! Guadeloupe, *Mazé*! St. Thomas, '*Challenger*'! Bermuda, '*Challenger*,' *Farlow* (*fide Bornet in lit.*).

A. SORDIDA Crn. (excl. syn.). Grenada, *Murray*! Guadeloupe, *Mazé*! Iles des Saintes (Guadeloupe), *Thiebault* (*fide Bornet in lit.*).

A. MAZEI G. Murr. et Bood. Guadeloupe, *Mazé*! Marie Galante (Guadeloupe), *Mazé*!

PENICILLUS DUMETOSUS Decne. Guadeloupe, *Mazé*! St. Thomas, '*Challenger*'! Florida, *Harvey*! *Melvill*. Bermuda, '*Challenger*'!

P. CAPITATUS Lam. Grenada. *Murray*! Guadeloupe, *Mazé*! Cuba, *Wright*. Jamaica, *Sloane*! Florida, *Harvey*! *Melvill*! *Hooper*! (in Farlow, Anderson and Eaton, No. 43). Bermuda, *Rein*, '*Challenger*'! omitted from list.

P. ELONGATUS Decne. Guadeloupe, *Mazé*!

P. LAMOUROUXII Decne. Guadeloupe, *Mazé*!

P. CLAVATUS Crn. Guadeloupe, *Mazé*!

RHIPOCEPHALUS PHŒNIX Kütz. Guadeloupe, *Mazé*! Cuba, *Wright*. Florida, *Harvey*.
Var. ELATIOR Crn. Guadeloupe, *Mazé*!

UDOTEA CONGLUTINATA Lam. Grenada, *Murray*! Guadeloupe, *Mazé*! St. Thomas, '*Challenger*'! Cuba, *Wright*. Florida, *Harvey*, *Melvill*! Bermuda, *Rein*, '*Challenger*.'

U. FLABELLATA Lam. West Indies, *Fleming*! (*Hb. Mus. Brit.*) Grenada, *Murray*! Guadeloupe, *Mazé*! Cuba, *Wright*. St. Thomas, '*Challenger*'! Florida, *Harvey*, *Melvill*! Bermuda, *Rein*, '*Challenger*'! omitted from list.

U. CYATHIFORMIS Decne. St. Thomas, '*Challenger*'!

U. HALIMEDA Kütz. St. Thomas, '*Challenger*'!

*Geogr. Distr.* Brazil.

U. TOMENTOSA nob. = RHIPILIA TOMENTOSA Kütz. Antilles, *Sonder*!

U.? LUTEOFUSCA nob. = FLABELLARIA LUTEOFUSCA Crn. Guadeloupe, *Mazé*! This very obscure form appears to me to be an imperfect state of an *Udotea*. Agardh, who had not seen a specimen (*loc. cit.* p. 76), says, "An potius *Avrainvilleæ* forma?" It is certainly not an *Avrainvillea*, though it outwardly resembles one.

[Agardh (*loc. cit.* p. 74) records *Udotea Desfontainii* Lam., from Guadeloupe (*Mazé*) on the ground of his placing *Flabellaria fimbriata* Chauv. in Mazé et Schramm Alg. Guad. p. 89, under that species. But Mr. Boodle and I have founded our *Avrainvillea Mazei* on No. 65 of their Algæ—which bears the name of *Flabellaria fimbriata*. There has probably been a mistake in distributing the specimens.]

HALIMEDA TUNA Lam. Grenada, *Murray*! Barbadoes, *Dickie*! Guadeloupe, *Mazé*! Florida, *Harvey*! *Melvill*, *Hooper*! (in Farlow, Anderson and Eaton, No. 41).

*Geogr. Distr.* Mediterranean.

H. BREVICAULIS Kütz. Bahama (*fide Kützing*).

*Geogr. Distr.* Indian Ocean.

H. OPUNTIA Lam. Grenada, *Murray*! Barbadoes, *Dickie*! Guadeloupe, *Mazé*! Sisal, *Schott*! Cuba, *Wright*. Jamaica, *Sloane*! St. Thomas, *Mertens*! '*Challenger*'! Danish West Indian Islands, *Hohenack*! No. 414. Tortola, *Cleve*! (in Wittr. et Nordst. Alg. Exsicc. No. 148). Florida, *Harvey*! *Melvill*! *Hooper*! (in Farlow, Anderson and Eaton, No. 40). Bermuda, *Rein*.

*Geogr. Distr.* In all warm seas.

H. INCRASSATA Lam. Grenada, *Murray*! Guadeloupe, *Duchassaing*, *Mazé*! St. Thomas, '*Challenger*'! Florida, *Harvey*! *Melvill*! Bermuda, *Rein*.

*Geogr. Distr.* Australia and Pacific.

H. TRIDENS Lam. Barbadoes, *Dickie*! Guadeloupe, *Mazé*! Cuba, *Wright*. St. Thomas, '*Challenger*'! Florida, *Harvey*, *Melvill*.

H. CYLINDRACEA Decne. Guadeloupe, *Mazé*!

*Geogr. Distr.* Madagascar.

H. MONILE Lam. Guadeloupe, *Mazé*! Florida, *Harvey*. Bermuda, '*Challenger*'! omitted from list.

VALONIA VENTRICOSA J. Ag. Grenada, *Murray*! Guadeloupe, *Duchassaing*, *Mazé*! (sub nomine *V. ovalis* Ag.). Santa Cruz, *Oersted*. Bermuda, *Mrs. Whelpdale* (in Herb. Mus. Brit.).

V. UTRICULARIS Ag. Guadeloupe, *Mazé*! (sub nomine *V. syphunculus* Bertol.). Bermuda ((*fide J. G. Agardh*), *Farlow*! (in Farlow, Anderson and Eaton, No. 171).

*Geogr. Distr.* Mediterranean. [I have very little doubt that the Bermuda form collected by Prof. Farlow is *Valonia ventricosa* J. Ag.]

V. ÆGAGROPHILA Ag. Cuba, *Wright*.

*Geogr. Distr.* Mediterranean, Indian Ocean, Pacific.

V. VERTICILLATA Kütz. Barbadoes, *Dickie*! Guadeloupe, *Mazé*! Santa Cruz (*fide J. G. Agardh*).

V. CONFERVOIDES Harv. Bermuda, *Farlow*.
*Geogr. Distr.* Indian Ocean, Pacific.

V. CÆSPITULA Zanard. Guadeloupe, *Mazé*!

V. CONFERVACEA Zanard. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean.

V. CÆSPITOSA Crn. Guadeloupe, *Mazé*!

V. TENUIS Crn. Guadeloupe, *Mazé*!

V. SUBVERTICILLATA Crn. Guadeloupe, *Mazé*!

ASCOTHAMNION INTRICATUM Kütz. Guadeloupe, *Duchassaing*, *Mazé*! Florida, *Farlow*. Bermuda, *Rein*, *Farlow*.
*Geogr. Distr.* Mediterranean and neighbouring Atlantic, Indian Ocean, Australia, Pacific.

TRICHOSOLEN ANTILLARUM Mont. Guadeloupe, *Mazé*!

SIPHONOCLADUS TROPICUS J. Ag. (= APJOHNIA TROPICA Crn.). Barbadoes, *Hb. Gray*. Guadeloupe, *Duchassaing*, *Mazé*! Florida, *Mrs. Curtiss*.
*Geogr. Distr.* Indian Ocean.

STRUVEA RAMOSA Dickie. Bermuda, '*Challenger*'!
*Geogr. Distr.* Canary Islands.

S. PULCHERRIMA G. Murr. et Bood. (olim *Phyllodictyon*). Gulf of Mexico, *Menzies*! The specimen recorded from Barbadoes by Dickie is a minute fragment of a green alga, which is certainly not *S. pulcherrima*.

S. DELICATULA Kütz. Guadeloupe, *Mazé*!
Var. CARACASANA Grunow. Caracas, *Gollma*!
*Geogr. Distr.* New Caledonia, Western Australia, and Ceylon.

CHAMÆDORIS ANNULATA Mont. Grenada, *Murray*! Barbadoes, *Dickie*! Guadeloupe, *Mazé*! Martinique, *Duperrey*. Florida, *Harvey*, *Melvill*.
*Geogr. Distr.* Brazil, Indian Ocean.

DICTYOSPHÆRIA FAVULOSA Decne. Barbadoes, *Dickie*! Guadeloupe, *Mazé*! Santa Cruz (*fide J. G. Agardh*). Cuba, *Wright*. St. Thomas, '*Challenger*'! Florida, *Harvey*! *Melvill*! Bermuda (*fide J. G. Agardh*).
*Geogr. Distr.* Red Sea, Indian Ocean, Australia, Pacific.

D. VALONIOIDES Zanard. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean.

ANADYOMENE STELLATA Ag. West Indies, *Hb. Landsborough*! (in Glasg. Univ.). Barbadoes, *Dickie*! omitted from list; *Hb. Brodie*! (in Glasg. Univ.). Guadeloupe, *Duchassaing*, *Mazé*! Santa Cruz, *Oersted*. Cuba, *R. de la Sagra*. St. Thomas, '*Challenger*'! Florida, *Harvey*! *Melvill*. Bermuda, *Kemp*, *Rein*, '*Challenger*'! *Farlow*! (in Farlow, Anderson & Eaton, No. 172).
*Geogr. Distr.* Mediterranean, Brazil.

A. MENZIESII Harv. = GRAYEMMA MENZIESII Gray. Gulf of Mexico, *Menzies*! (in Herb. Mus. Brit.).

CAULERPA FASTIGIATA Mont. Guadeloupe, *Mazé*! Cuba, *R. de la Sagra*!

Var. CONFERVOIDES Crn. Guadeloupe, *Mazé* !
*Geogr. Distr.* Brazil, Friendly Islands.

C. PUSILLA Mart. et Hering. Guadeloupe, *Mazé* !

C. VERTICILLATA J. Ag. Gulf of Mexico, *Liebman*. West Indies, *Duchassaing*, *Oersted* (*fide J. G. Agardh*).
*Geogr. Distr.* Friendly Islands.

C. WEBBIANA Mont. Guadeloupe, *Mazé* !
*Geogr. Distr.* Canary Islands, Pacific.

C. PROLIFERA Lam. Guadeloupe, *Mazé* ! Progreso, *Schott* ! Cuba, *Wright*.* Florida, *Harvey*, *Melvill*. Bermuda, *Kemp*, *Rein*.
Var. FIRMA Kütz. Guadeloupe, *Mazé* !
*Geogr. Distr.* Warm Atlantic and Mediterranean.

C. CRASSIFOLIA Ag., var. MEXICANA. Guadeloupe, *Mazé* ! Cuba, *Wright*. Mexico, *Binder*. St. Thomas, '*Challenger*' ! Florida, *Harvey*, *Melvill* ! Bermuda, *Rein*, '*Challenger*' ! *Farlow* ! (in Farlow, Anderson and Eaton, No. 170).
*Geogr. Distr.* Brazil.

C. TAXIFOLIA Ag. Grenada, *Murray* ! Barbadoes, *Dickie* ! Guadeloupe, *Mazé* ! Jamaica, *Chitty* ! Santa Cruz, *Miss Dix* ! West Indies, *Hb. Wallroth* !
*Geogr. Distr.* Pacific, Australia, Indian Ocean.

C. PECTINATA Kütz. La Guayra (*fide Kützing*). Guadeloupe, *Mazé* !

C. PLUMARIS Ag. Grenada, *Murray* ! Barbadoes, *Dickie* ! Guadeloupe, *Mazé* ! Florida, *Harvey*, *Melvill* ! Bermuda, *Kemp*, *Rein*, *Hb. Glasg. Univ.* ! *Farlow* ! (in Farlow, Anderson and Eaton, No. 169).
Var. ELEGANS. Guadeloupe, *Mazé* !
*Geogr. Distr.* Tropical seas.

C. ASHMEADII Harv. Yucatan, *Schott* ! St. Thomas, '*Challenger*' ! Florida, *Harvey*, *Melvill* ! *Hooper* ! (in Farlow, Anderson and Eaton, No. 36.

C. FREYCINETII Ag. Grenada, *Murray* ! Guadeloupe, *Mazé* !
*Geogr. Distr.* Red Sea and Indian Ocean, Pacific, Australia.

C. ERICIFOLIA Ag. Guadeloupe, *Mazé* ! Martinique, *Hb. Brongniart* ! (in Glasg. Univ. Herb.). Florida, *Farlow* ! (in Farlow, Anderson and Eaton, No. 96).

C. CUPRESSOIDES Ag. Guadeloupe, *Mazé* ! Jamaica, *Chitty* ! St. Thomas, '*Challenger*' ! *Hb. Wallroth* ! Florida, *Harvey*, *Melvill* !
Var. ALTERNIFOLIA Crn. Guadeloupe, *Mazé* !

C. DISTICHOPHYLLA Sond. Guadeloupe, *Mazé* !
*Geogr. Distr.* Western Australia.

C. SELAGO Ag. Grenada, *Murray* ! Barbadoes, *Dickie* ! (omitted from his list). Guadeloupe, *Mazé* !
*Geogr. Distr.* Red Sea.

C. LYCOPODIUM J. Ag. Martinique, *Duperrey*.
*Geogr. Distr.* Brazil.

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* Prof. Farlow, in his paper on Cuban Sea-weeds ('American Naturalist,' vol. v., p. 201), leaves it in some uncertainty which species of *Caulerpa* and of *Udotea* are mentioned as having been collected by Mr. Charles Wright—and which are cited for the purpose of illustrating their structure.

C. LANUGINOSA J. Ag. = C. LYCOPODIUM Harv. Florida, *Harvey Melvill* ! *Hooper* ! (in Farlow, Anderson and Eaton, No. 37).

C. PASPALOIDES Grev. Florida, *Harvey*, *Hooper* ! (in Farlow, Anderson and Eaton, No. 38).

*Geogr. Distr.* Brazil, Pacific (Valparaiso).

C. CYLINDRACEA Sond. ? Barbadoes, *Dickie* !

*Geogr. Distr.* Australia, Indian Ocean.

C. CLAVIFERA Ag. Grenada, *Murray* ! Barbadoes, *Dickie* ! Guadeloupe, *Mazé* ! Cuba, *Wright*. St. Thomas, *Hb. Wallroth* ! *Hohenack* ! Florida, *Harvey*, *Melvill*, *Hooper* ! (in Farlow, Anderson and Eaton, No. 39). Bermuda, *Rein*, '*Challenger*' !

Var. CONDENSATA Crn. Guadeloupe, *Mazé* !

Var. UVIFERA Ag. Guadeloupe, *Mazé* !

*Geogr. Distr.* Tropical seas.

C. CHEMNITZIA J. Ag., var. OCCIDENTALIS. Gulf of Mexico (*fide J. G. Agardh*).

*Geogr. Distr.* Brazil. The typical form of this species occurs in the Red Sea and Indian Ocean.

C. SEDOIDES Ag. Grenada, *Murray* ! Guadeloupe, *Mazé* !

*Geogr. Distr.* Australia and Pacific.

C. TRIANGULARIS Crn. Guadeloupe, *Mazé* !

C. INDICA Sond. Guadeloupe, *Mazé* !

*Geogr. Distr.* Indian Ocean.

DASYCLADUS CLAVÆFORMIS Ag. Cuba, *Wright*. Florida, *Farlow*.

*Geogr. Distr.* Madeira and Canaries, Mediterranean.

BOTRYOPHORA OCCIDENTALIS J. Ag. = DASYCLADUS OCCIDENTALIS Harv. and D. CONQUERANTII Crn. Guadeloupe, *Mazé* ! Florida, *Harvey*, *Melvill* ! *Hooper* ! (in Farlow, Anderson and Eaton, No. 97). Santa Cruz, *Oersted*. Bahama, *Swainson*. Bermuda, *Rein*.

CYMOPOLIA BARBATA Lam. Jamaica, *Sloane* ! *Hb. Mus. Brit.* ! (no collector's name). San Domingo and Cuba (*fide J. G. Agardh*). Florida, *Harvey* ! *Melvill*. Bermuda, *Rein*.

*Geogr. Distr.* Canary Islands and Cadiz.

C. MEXICANA J. Ag. Vera Cruz, *Liebman*.

NEOMERIS DUMETOSA Lam. West Indies, *Richard*. Cuba, *Wright*.

*Geogr. Distr.* Pacific.

ACETABULARIA CARAIBICA Kütz. West Indies (*fide Kützing*).

*Geogr. Distr.* Pacific (Friendly Islands).

A. CRENULATA Lam. Guadeloupe, *Duchassaing*, *Mazé* ! Cuba, *Wright*. Florida, *Harvey*, *Melvill*, *Hooper* ! (in Farlow, Anderson and Eaton, No. 42). Bermuda, *Kemp*, *Rein*.

A. POLYPHYSOIDES Crn. Guadeloupe, *Mazé* !

(To be continued.)

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## THE SYNONYMY OF *POTAMOGETON RUFESCENS* SCHRAD.

By ARTHUR BENNETT, F.L.S.

IN this Journal for 1887, p. 373, I made a few remarks on the names given to the above species; the dates there given were erroneous for some of the names, from my trusting to memory when writing. Since that time I have seen or consulted a good many specimens and authorities, with a view to the discovery of the earliest name given to the plant in one or other of its forms. Mainly by the kindness of Prof. Caruel, of Florence, I am enabled to say that, as far as one can judge at present, the earliest name is *P. alpinus* Balbis in 'Miscellanea Botanica,' p. 13 (1804):* *P. annulatus* Bellardi was undoubtedly published in the same year, but later.

*P. alpinus* occurs at p. 329 of the 7th volume of the 'Mémoires de l'Académie de Turin'; the *P. annulatus* Bellardi, at p. 447, Balbis, in an autograph letter accompanying a presentation copy of his Misc. Bot. to the Florence Museum, speaks of his 'Mémoire' as just published.

In the note before referred to, I mentioned that Seidls' MS. name (*purpurascens*, 1812) was published by Fieber in 1838, but Presl had already done so in his Fl. Cechica, p. 37 (1819). Many authors quote Roth's "*P. serratus*" (Fl. Germ. (1788–1800) i. 73, and ii. 205) for *rufescens*, but Roth refers to the Fl. Danica plate, t. 195, as his plant, and that plate certainly represents *P. lucens* L. (agg.).

*P. serratum* L. Sp. Pl. ed. 1 (1753), p. 126, is, according to the specimen in his herbarium, simply a curious form of *P. crispus* L.!

Nolte gives *P. serratus* L. Sp. Pl. as *Zizii* in Hansen's Herb. Schl. Hol. No. 1114 (Herb. Mus. Brit.!), but this must have been a mere supposition, as Linnæus's description most clearly applies to the specimen in his herbarium, and that is *crispus!* but a most extraordinary and abnormal form.

In Sir J. E. Smith's herbarium at the Linnean Society are two sheets (Nos. 13 and 14) of specimens of *rufescens* from "Herb. Davall, 1802," named by Du Croz "*lanceolatum*. H. 847?"; Smith has added, "a bad name." Du Croz does not seem to have published this name before, or after 1804.

The following list is a contribution to the names placed by me under *rufescens* as an aggregate species:—

*Potamogeton alpinus* Balbis, Misc. Bot. p. 13 (1804).
*P. annulatus* Bellardi, Mem. Acad. Turin, p. 447 (1804).
*P. obscurus* DC. Fl. France, Supp. 5, p. 311 (1805).
*P. fluitans* (Schum.) Horn. Fl. Danica, t. 1450 (1813).
*P. semipellucidus* Koch et Ziz. Cat. Pl. Pal. p. 18 (1814).
? *P. spathulatus* Schrad. in Koch et Ziz. *l. c.*
*P. rufescens* Schrad. ap. Cham. Ad. Fl. Berol. p. 5 (1815).
*P. purpurascens* Seidl ap. Presl, Fl. Cechica, p. 37 (1819).
*P. lucens* v. *angustifolius* Horn. Fl. Dan. t. 1635 (1819).
*P. nervegerus* Wolf. ap. R. et S. Mant. 3, p. 359 (1827).
*P. microstachys* Wolf. ap R. et S. *l. c.*
*P. fluitans* Smith, Eng. Fl. 1, p. 231 (1828).
*P. obtusus* Du Croz, ap. Gaud. Fl. Helv. 1, p. 468 (1828).

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[* Mr. Druce has already called attention to the claims of this name to priority. See Journ. Bot. 1887, p. 335.—Ed. Journ. Bot.]

? *P. oblongo-rufescens* (*spathulatus*) Schultz, Fl. No. 15 (1849).
? *P. Kochii* F. Schultz (*spathulatus*), Arch. Fl. Fr. et All. 72 (1842–54).
*P. lucens* v. *rufescens* Benth. Hand. Brit. Fl. ed. 1, p. 493 (1858).
? *P. alpino-natans* (*spathulatus*) Schultz in Jah. d. Poll. p. 229 (1863).
*P. obtusus* Wood, sec. A. Gray, Man. N. U. S. p. 486 (1868).
*P. lanceolatus* Hook. ex pte. et Du Croz in Herb. Smith! et Nolte!
*P. retusum* Smith MSS. Herb. Mus. Brit.!
*P. lucens* Lagasca ex sp. Herb. Kew.!

I shall be grateful for any additions to this list.

## *ORCHIS LATIFOLIO-MACULATA* Towns. (?) IN DEVON.

By T. R. Archer Briggs, F.L.S.

In Mr. Townsend's 'Flora of Hampshire' (p. 341), a hybrid *Orchis* is mentioned as between *O. latifolia* L. and *O. maculata* L., appearing therein under the designation of *O. latifolio-maculata*. From observations I have recently been making in my own neighbourhood I am led to suspect that hybrids between these two species are rather freely produced when they grow together. In a meadow here, at Fursdon, both occur, together with a third plant with intermediate features, and separable from each of them. In pasture land on a neighbouring estate, Derriford, the two again occur, and there is this third plant also, though, as at Fursdon, in lesser numbers than are the other two. On the other hand, I have failed to find it in places where either *O. latifolia* or *O. maculata* grows alone.

On examining two fine specimens of the doubtful plant gathered on Derriford, I find that they differ from *latifolia* in having the label much larger and broader, with three lobes of nearly equal length, the middle one not being conspicuously the longest, in having the spur considerably longer and narrower, and less abruptly pointed. From *O. maculata* they differ in having the lower bracts broader and longer, their points exceeding in length the lowest flowers, and so appearing beyond them; in having the label less cut at its edges and altogether of more formal outline, and the spur considerably less filiform. The ground-colour of the flowers is considerably deeper than is usual in *O. maculata*. This supposed hybrid is usually of greater height and more slender growth than *O. latifolia*. It has the leaves rather faintly spotted.

The circumstances under which this plant is found in the parish of Egg Buckland, where Fursdon and Derriford are situated, strongly point to its being of hybrid origin, with the probability of *O. latifolia*, rather than *O. maculata*, being usually the seed-parent, proceeding on the supposition of Orchis-pollen being likely to find readier and wider transport than the ripe seed.

In addition to the notice of *Orchis latifolio-maculata* in the 'Flora of Hampshire,' I find Mr. G. C. Druce making mention of a hybrid between *latifolia* and *maculata* in his 'Flora of Oxfordshire,' under his notice of the former species (p. 294). He says:—"Several forms of *latifolia* are found in Headington Wick Bog, including a hybrid between it and *maculata*. This," he adds, "has the solid stem and spreading leaves of *maculata*, but the flowers are very nearly those of *latifolia*."

In connection with the above, I cannot refrain from saying that the *Orchis* of this neighbourhood which I put to *latifolia* has certain features which belong, according to some descriptions of the purple-flowered variety of *O. incarnata*, rather to that plant, though it is very unlike the veritable *O. incarnata* L. described by Mr. C. B. Clarke in Journ. Linn. Soc., No. 120, vol. xix., pp. 206–8. This latter striking plant I have seen growing near the Lizard, in Cornwall, and there only. The Plymouth plant, moreover, has its leaves broadest "near the middle" rather than "near the base," a character given as a special mark of *latifolia*, with only the lower bracts exceeding the flowers. The lip, too, is only slightly divided, though, on the other hand, its middle lobe, or portion, ends in what is decidedly the longest point. Specimens of an *Orchis* that I found some years ago in a bog on Crownhill Down had more of the characters assigned to the purple-flowered variety of *incarnata*, and the receipt of a specimen thence caused the late Mr. Watson to put down the plant for S. Devon in Top. Bot., on my authority; so that it, as well as the *O. latifolia* L. (*O. majalis* Reich.), appears therein as a S. Devon plant.

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# BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.

By James Britten, F.L.S., and G. S. Boulger, F.L.S.

(Continued from p. 216.)

**Knight, Frances** [*see* Acton, Frances Stackhouse].

**Knight, Henry** (fl. 1838). Collected in Florida for Joseph Knight (his brother?), of Chelsea. Floral Cabinet, ii. 47. *Ismene Knightii* Kn. & Westc.

**Knight, Joseph** (fl. 1809–1836). Gardener to Hibbert, afterwards nurseryman at Chelsea. 'Proteēæ,' 1809. 'Coniferous Plants.' Pritz. 166; Jacks. 141, 408; Journ. Bot. 1886, 296.

**Knight, Thomas Andrew** (1759–1838): b. Wormsley Grange, Ludlow, 12th Aug. 1759; d. London, 11th May, 1838; bur. Wormesley. Balliol, Oxon. F.L.S., 1807. F.R.S., 1805. Pres. Hort. Soc. 1811–1838. Pritz. 166; Jacks. 69; R. S. C. iii. 687; Gard. Mag. xiv. 303; 'Selection from . . . . papers and life,' 1841; Gard. Chron. 1841, 351; 1877, i. 169, with portr.; Cott. Gard. vi. 43; Journ. Hort. xxi. (1876), 428, with portr.; 'Athenæum,' 1838, 358. Portr. at Kew. *Knightia* Br.

**Knight, William** (fl. 1828). Lecturer on Bot., Aberdeen Univ. 'Outlines of Bot.,' 1828. Pritz. 166.

**Knowles, Gilbert** (b. 1674 ?). 'Materia Medica Botanica, 1723, in verse, with engr. portr. by Faber, after Murray. Pritz. 166; Jacks. 200; Pult. i. 282.

**Knowles, George Beauchamp** (fl. 1829–1852). Surgeon. A.L.S., 1834. F.L.S., 1834. Prof. Bot. Birmingham School of Medicine, 1829–1852. 'Floral Cabinet' (with F. Westcott), 1837–40. Pritz. 166; Jacks. 472. *Knowlesia* Hassk. = *Tradescantia spicata.*

**Knowlton, Thomas** (1692–1782): b. 1692; d. Londesborough, Yorks., 1782. F.L.S., 1795. Gardener to Sherard at Eltham, and to Earl of Burlington at Londesborough. Letters to Brewer in Bot. Dept. Brit. Mus. Ait. Hort. Kew. x.; Pult. ii. 239; Rich. Corr.; Linn. Letters, i. 77. *Knowltonia* Salisb.

**Knox, Robert** (fl. 1657–1681). Captain, E. I. C. Navy. 'Account of Ceylon,' 1681. Captive in Ceylon, 1659–1679. Pritz. ed. i. 141. *Knoxia* L.

**Konig, Charles Dietrich Eberhard** (1774–1851): b. Brunswick, 1774; d. London, 29th Aug. 1851. Keeper of Mineralogy, Brit. Museum, 1813. F.L.S., 1802. F.R.S. 'Annals of Bot.' (with Sims), 1805–6. 'Tracts,' 1805. Translated Sprengel, 1807. Pritz. 168; Jacks. 567. Portr. in Ann. Bot. ii. *Koniga* Br.

**Kurz, Sulpiz** (1833 ?–1878): b. Munich, 1833 ?; d. Pulo Penang, 15th Jan., 1878. Pupil of Martius. At Bot. Gard. Buitenzorg. Afterwards Curator, Calcutta Herbarium. 'Report on . . . . Vegetation of . . . . Andaman Islands,' 1867. 'Forest Flora of Brit. Burma,' 1877. Pritz. 172; Jacks. 569; R. S. C. viii. 138; Journ. Bot. 1878, 217.

**Kyd, Robert** (d. 1794): d. Calcutta, 1794. Colonel. Established Calcutta Bot. Gard., 1787. *Kydia* Roxb.

**Lagasca, Mariano** (1776–1839): b. Encinacorva, Arragon, 4th Oct. 1776; d. Barcelona, 23rd June, 1839. F.L.S., 1831. Prof. Bot. and Director, Royal Garden, Madrid. Took refuge in British territory in 1822. 'Elenchus pl. in hort. Matritensi,' 1816. 'Genera et Species Pl.,' 1816. Pritz. 173; Jacks. 446; R. S. C. iii. 801; Proc. Linn. Soc. i. 71. *Lagasca* Cav.

**Lamb, Thomas** (fl. 1794). M.D. A.L.S., 1789. F.L.S., 1794. Of Reading. Eng. Bot. 1931, 2031.

**Lambert, Aylmer Bourke** (1761–1842): b. Bath, 2nd Feb. 1761; d. Kew, 10th Jan. 1842. St. Mary Hall, Oxon, 1779. F.L.S., 1788; V.-P., 1796. F.R.S., 1791. 'Cinchona,' 1797. 'Pinus,' 1803–1829; ed. 2, 1832; vol. iii. 1836. Contrib. to Eng. Bot. (1359, 2562, &c.). Herbarium in part in Herb. Mus. Brit. Partly bought by Delessert, Lasègue, 75. Discovered *Carduus tuberosus,* 1813. Pritz. 174; Jacks. 569; R. S. C. iii. 812; Proc. Linn. Soc. i. 137; Gard. Chron. 1842, 271, 439; Athenæum, 1842, 1137; Veitch, 'Manual of Coniferæ,' 180. Oil portr. by Russell at Linn. Soc. Portr. at Kew. *Aylmeria* Martius. *Lambertia* Sm. *Salix Lambertiana* Sm.

**Lance, John Henry** (d. 1878): d. 12th Jan. 1878. Of Netherton, near Andover. F.L.S., 1828. Resided in Surinam before 1834. Bot. Reg. t. 1887. *Oncidium Lanceanum* Lindl.

**Landon, Sylvanus** (fl. 1699). Surgeon. Brought plants to Petiver from Spain, Azores, and Borneo, Mus. Pet. 45.

**Landsborough, Rev. David** (1779–1854): b. Dalry, Glen Kens, Galloway, 11th Aug. 1779; d. Saltcoats, Ayrsh., 12th Sept. 1854. Minister of Stevenston, Ayrshire, 1811. A.L.S., 1849. D.D. 'Pop. Hist. Brit. Seaweeds,' 1849; ed. 3, 1857. Contributed to Harvey's 'Phytologia.' Discovered *Ectocarpus Landsburgii.* Pritz. 175; Jacks. 242; 'Memoir' in his 'Arran,' ed. 2, 1875; R. S. C. iii. 836; Proc. Linn. Soc. ii. 426. *Landsburgia* Harv.

**Langham, William** (fl. 1579–1633). 'Practitioner in Physicke.' 'The Garden of Health,' 1579; ed. 2, 1633. Jacks. 28.

**Langley, Batty** (fl. 1729–1808). Of Twickenham. 'Pomona, or the Fruit-Garden; illustrated,' 1729 (figures by author). Pritz. ed. 1, 148.

**Langley, Larret** (fl. 1827–1839). Of Brompton Academy, Rotherham. F.L.S., 1827. 'Flora of Rotherham,' Mag. Nat. Hist. 1829, 269.

**Lankester, Edwin** (1814–1874): b. Melton, Suffolk, 23rd April, 1814; d. 30th Oct. 1874. M.D., Heidelberg, 1839. F.R.S., 1846. F.L.S., 1840. Sec. of Ray Society, 1844–1862. 'Formation of Wood,' Rep. Brit. Assoc. 1839. 'Setæ of *Funaria*,' Ann. Nat. Hist. iv. (1840), 361. 'Plants and animals in . . . waters of Harrogate,' *ib.* vii. (1814), 105. Contrib. to Phytol. i. Wrote Botany in 'Penny Cyclopædia' from letter R. Translated Schleiden, 1849. Trans. Bot. Soc. Edinb. xii. 202; Pritz. 176; Jacks. 570; R. S. C. iii. 844; Athenæum, ii. 1874. Portr. Men of Eminence, 1865. *Lankesteria* Lindl.

**Laurence,** or **Lawrence, Rev. John** (1668–1732): b. St. Martin's, Stamford Baron, Northamptonsh., 1668; d. Bishop's Wearmouth, Durham, 18th May, 1732; bur. same place. M.A., Camb. Rector of Yelvertoft, 1703. Rector of Bishop's Wearmouth, 1721. Prebendary of Salisbury, 1723. 'A new system of Agriculture . . . containing an . . . account of . . . Silphium,' 1726. Additions to ed. 5 of Curtis' 'British Grasses,' 1812. Journ. Hort. xxx. (1876), 271, with portr. Portr. in possession of Pemberton family.

**Law, John Sutherland** (d. 1886?). Of Bombay Civil Service. F.L.S., 1856. Collected in Deccan, Concan, &c. Wight, Ic. 1070. Pl. at Kew. Lasègue. *Lawia* Wight = *Adenosacme. Lawia* Griff. = *Terniola* Tul.

**Lawrence, Miss Mary** (fl. 1790–1810). Of London. 'Teacher of botanical drawing.' 'A collection of Roses from Nature,' 1799. 'A collection of Passion Flowers,' 1799–1800. Pritz. 177; Jacks. 142.

**Lawrence, Robert William** (1807–1833); b. 18th Oct. 1807; d. Tasmania, 18th Oct. 1833. Collected in Western Mountains, Tasmania. Lasègue, 328; Journ. Bot. 1834, 235; Comp. Bot. Mag. i. 272; Fl. Tasmania, cxxv.; R. S. C. iii. 894. *Lawrencia* Hook.

**Lawson, Isaac** (fl. 1737–1747): b. in Scotland; d. before 1748. M.D., Leyden, 1737. Friend of Linnæus and Gronovius.

Printed (with Gronovius) Linné's 'Systema Naturæ.' Linn. Diary, 530; Linn. Letters, i. 18; ii. 173, 175; Rich. Corr. 345. *Lawsonia* L.

**Lawson, John** (d. 1712): b. in Scotland; burnt by Indians on R. Neuse, North Carolina, 1712. Surveyor-General of North Carolina from 1700. 'Voyage to Carolina,' 1709; reprinted as 'History of Carolina, containing the . . . Natural History . .,' 1714. Plants in Herb. Sloane, 145, 242. Pritz. ed. 1, 150; Appleton, Cyclop. Americ. Biog.; Drake, Dict. Americ. Biog.

**Lawson, John** (fl. 1829–1839). Of Elgin. 'On . . . smut-balls in wheat,' Journ. Agric. ix. 1839, 269. 'Treatise on Smut in Grain,' 1829. R. S. C. viii. 178.

**Lawson, Rev. Thomas** (1630–1691): b. 10th Oct. 1630; d. Great Strickland, Westmoreland, 12th Nov. 1691; bur. Friends' Burying-ground, Newby Head. Vicar of Rampside, Furness. Afterwards master of Friends' School, Great Strickland. List of plants, Ray Letters, 197. Pult. ii. 116; Rich. Corr. 5; Nich. Anecd. i. 233; R. Syn.. ed. 1, 43, &c.; Pluk. Alm. 8; Friends' Books, ii. 88. *Hieracium Lawsonii* Vill.

**Lay, George Tradescant** (fl. 1825–1843). Naturalist to H.M.S. 'Blossom,' on Beechey's voyage, 1825–1828. Collected, with A. Collie, in California, in 1827. Chinese plants in Hb. Mus. Brit. R. S. C. iii. 896; Lasègue, 84; Hooker, 'Bot. Beechey's Voyage.' *Layia* Hook. & Arn.

**Leathes, Rev. George Reading** (1778?–1836): b. 1778?; d. Shropham, Norfolk, 1st Jan. 1836. M.A., Cambridge, 1813. Rector of Limpenhoe, 1803; Wickhampsted, 1804. F.L.S., 1805. Contrib. to Eng. Bot. 1823, &c.; to Mag. Nat. Hist.; and to Bury Bot. Gard. Plants in herb. of Rev. T. Rogers, of Lackford. Gent. Mag. April, 1836, p. 439. *Leathesia* Gray.

**Lee, Ann** (fl. 1771–1778). Daughter of James Lee. Drawings of *Mesembryanthemum* in Bot. Dept., Brit. Mus. (1771-8). Journ. Bot. 1884, 123.

**Lee, Arthur** (1740–1792): b. Westmoreland, Virginia, 20th Dec. 1740; d. Urbana, Virginia, 12th Dec. 1792. M.D., Edinb. F.R.S. LL.D., Camb., Mass., 1782. Commissioner of U.S. to France and Spain. Correspondent of Adanson. Pritz. ed. 1, 151; 'Life,' 1829.

**Lee, Henry** (d. 1888): d. Croydon, 1888. F.L.S., 1866. Naturalist to the Brighton Aquarium. 'The Vegetable Lamb of Tartary,' 1887.

**Lee, James** (1715–1795): b. Selkirk, 1715; d. Hammersmith, 1795. Gardener at Syon and Whitton. Nurseryman, circ. 1745, with Kennedy at Hammersmith. Had collectors in America and at the Cape. Introduced *Fuchsia coccinea*. 'Introduction to Botany,' 1760; ed. 2, 1765; ed. 3, 1776; ed. 4, 1794, with portr. Pritz. 179; Jacks. 571; Gard. Chron. 1881, ii. 330; Loudon, Arboretum, i. 78. *Leea* L.

**Lee, John Edward** (1808–1887): b. Hull, Yorksh., 21st Dec. 1808; d. Torquay, Devon, 18th Aug. 1887. F.G.S., 1859. Geologist and Antiquarian. 'On the dispersion . . . of Plants,' Mag. Nat. Hist. v. 1832, 522. R. S. C. iii. 925.

**Lee, Sarah,** *née* **Wallis** (1792?–1865): b. Colchester?, 1792?; d. 1865. m. 1, Thomas Edward Bowdich, 1813; m. 2, R. Lee. 'Trees, Plants, and Flowers,' 1854. Dict. Nat. Biog. vi. 43; Jacks. 42; R. S. C. i. 550.

**Lees, Edwin** (1800–1887): b. Worcester, 1800; d. Worcester, 21st Oct. 1887; bur. Pendock, Tewkesbury. F.L.S., 1835. Printer and stationer. Editor, 'Malvern News,' 1861. Contributed to Phytol. from 1841. A founder of Worcester Nat. Hist. Soc., and of Worcestersh. Naturalists' Club. Cat. Worcester Pl., 1828. 'Botanical Looker-out,' 1842; ed. 2, 1851. 'Botany of Malvern Hills,' 1843; ed. 2, 1852. Discovered *Rubus Leesii*. Eng. Bot. 2981; Pritz. 179; Jacks. 571; R. S. C. iii. 925; viii. 189; Journ. Bot. 1887, 384; Ann. Bot. 1888, 406, with bibliog. *Rubus Leesii* Bab.

**Legge, George** (1755–1810): b. 3rd Oct. 1755; d. 1st. Nov. 1810. M.A., Oxon, 1775. D.C.L., 1778. F.R.S. F.L.S., 1790. Viscount Lewisham. Became 3rd Earl of Dartmouth, 1801. K.G., 1805. Contrib. to Eng. Bot.

**Legle, Gilbertus,** "Gilbertus Anglicus" (fl. 1250). 'De re Herbaria,' lib. i.; 'De viribus et Medicinis Herbarum, Arborum, et Specierum'; De Virtutibus Herbarum,' MSS. Pult. i. 22; Haller, i. 209, and Addend. ii. 658; Tanner, Bibl. Brit.-Hib. 474; Chaucer, Prologue, l. 434.

(To be continued.)

## SHORT NOTES.

Festuca heterophylla Lam., in Britain.—While Mr. Carruthers's remarks (pp. 216, 217), on the sale of this plant by seedsmen, show the need of caution in dealing with the question of its being native, I must protest against the point being summarily dismissed without a fuller examination of its claims; and will venture to test the accuracy of one or two of his statements, taking Prof. E. Hackel, the monographer of the European *Festucæ*, as my authority in so doing. I find him saying (Mon. p. 131):—"Planta *præcipue* australis, vix ultra 52° lat. bor. progrediens"; which is not quite the same thing as "it is a S. European plant." He continues:—"Quum sæpissime cum var. fallaci commutata sit, indicationibus auctorum non semper fidere possum. *Secundum specimina a me visa* provenit [the italics are my own] . . . frequens in Gallia . . . occidentali et boreali usque Parisias . . . frequens etiam in Germania occident. et australi, rarius in media et septentrionali (limites septentrionales mihi noti: Palatinatus, Bonn, Kyffhæuser, Braunschweig, Sondershausen, Halle, Spandau, Strehlen)." Thus it does *not* find its Germanic northern limit at Frankfurt, which is little N. of lat. 50°; whereas Spandau nearly touches lat. 53°, Brunswick also being N. of lat. 52°, and Halle only a little S. of it. Nyman gives the species as a native of Belgium; and its introduction there (though not in Denmark, so much further north), appears to need proof. Even Mr. Druce's Oxford station is S. of both Spandau and Brunswick; and my Surrey locality is nearly on the same parallel with Halle. The argument of "continental climates" seems to me *in favour of*, and not *against* its being native in this country; for our winters are much less severe than those of either Paris or Frankfurt. Therefore, on *general* grounds, I respectfully suggest that, apart from its being to some extent a marketable grass, there is no positive presumption whatever against its wildness in Southern England. Mr. Carruthers has, apparently, made no enquiry into the nature of the two localities already on record, which is obviously an essential matter. Of the Oxford station I can say nothing, though the occurrence of *Lilium Martagon* raises suspicions. But at Witley, Surrey, where I live and have special facilities for forming an opinion, I can assert that it is certainly not an *accidental* introduction; nor can I find any proof that it was *purposely* sown. The woodland spot where it occurs, though on private ground, has clearly not been disturbed for many years; and the grass (associated with *Poa nemoralis*, *Festuca ovina*, &c.), looks quite native. I also found this species, last spring, under trees near Bentworth House, 4½ miles from Alton, N. Hants, on rather bare, brambly, neglected ground, and there also thought it wild; but I was only a chance visitor, and have not yet revisited the place. My strong expectation is that *F. heterophylla* will be found in various other southern stations, though probably it may prove a very local grass. Has anyone met with it naturalized in permanent pastures? It is not so around Witley, as far as I can see.—EDWARD S. MARSHALL.

FESTUCA HETEROPHYLLA Lam. IN N. HANTS. — On March 28th I met with a grass under trees at Bentworth House, 4½ miles from Alton, which had the habit, and triangular, scabrid root-leaves of the above-named species. Two tufts were grown on in my garden, and are now (June) coming into flower. They are precisely similar to the Witley plant.—EDWARD S. MARSHALL.

A PERTHSHIRE ORCHID. — I have looked at the remarkable orchid you have sent me, collected by Dr. Buchanan White in Perth. I can hardly pretend to name it, but suppose it may be a small form of *O. maculata* Linn. I have seen small forms of *O. maculata*, with small white flowers, growing in very wet marshes. Mr. J. G. Baker, however, said Dr. White's plant appeared to him more probably a depauperated state of *O. latifolia* Linn. With regard to *O. incarnata* Linn., of which I have given a figure in Journ. Linn. Soc. v. xix. t. 31, this figure is exceedingly accurate, except that the colour added to the separate flower "2" is much too high. It is one of the easiest characters for the collector of this species that there is no trace of purple in the flower. As I know the plant at Bransbury, the colour is always a very pale, slightly yellowish, rose, becoming more yellow as the flower fades. The Lancashire examples you have since shown me were rose-red, more highly coloured than any Bransbury example, not yellow, and not in the least purple. The strong, almost continuous, inter-marginal line round the lip is also a good character in this species; I see no trace of any such line in Dr. White's plant, and I do not think his plant can be any form of *O. incarnata* Linn. The old plate of Sowerby's (Engl. Bot. t. 2308) of *O. latifolia*, which is reproduced in Syme's Engl. Bot. with the new name *O. incarnata*, I would still call *O. latifolia*; the spike is too lax, and slightly wider at the base (*i. e.*, not exactly oblong as in *O. incarnata* Linn.), the lower bracts are too long for *O. incarnata* Linn. Nor have I ever seen the flowers so purple in *O. incarnata*. Any botanist who visits Bransbury Common between the 24th and 30th of June can find, in plenty, three very distinct plants there, *viz.*, *O. maculata* Linn., *O latifolia* Linn., and the plant I have maintained to be *O. incarnata* Linn.—C. B. Clarke.

Ranunculus acris L.—Mr. Townsend's recent paper (p. 140, *ante*), explaining that this name is properly applicable to *R. Boræanus*, instead of to *R. Steveni*, removes a difficulty which must have been felt by all who have endeavoured to understand these plants. For some time I have considered *Boræanus* to be the common plant of Surrey, I have met with what I understand to be *R. Steveni* in but a single station—on the chalk, at the extreme eastern end of Surrey. In each of the two specimens obtained the horizontal rhizome was about 3 in. in length, bearing two tufts of leaves and flower-stems separated by that distance. Having only a small knife with me at that time, I was unable to ascertain the real extent of the rhizome. According to Jordan, as quoted by Lloyd ('Fl. d'Ouest'), it would appear that the rootstock is not only creeping, but branching, so that the plant soon "covers a large area." It is not to be expected that on a hard chalky bank the rhizome would run so freely as in a loose, open soil, and I hope to get the plant and grow it. I endeavoured to do so last year, but the road had been re-made and banked up, and the plant was not to be found. I hope that Mr. Townsend will some day give the distribution of *R. Steveni* in Britain, as at present known.—W. H. Beeby.

Autumnal Flowering of Mercurialis perennis.—At page 22, Mr. F. J. George has a note on a variety or state of this plant which seems habitually to flower in the autumn, and which he proposes to make into a named variety chiefly for that reason. Turning to my diary for 1883, I find a record of *M. perennis* being in flower at Warboys Wood (Hants Co. 31) on October 28th; and, unless my memory greatly misleads me, I have noticed the autumnal flowering of some few plants of this species in nearly every subsequent year. Indeed, until I read Mr. George's interesting note, I supposed this species, like many others that usually flower early in the year, habitually produced a few flowers in warm autumns, just as often as primroses and violets anticipate the spring. But on the other hand, this second flowering is characteristic of some species, such as *Caltha palustris*, which habitually flowers in September in hot or cold years alike. Possibly this may also be the case with *M. perennis*.—Alfred Fryer.

Molinia cærulea in the Bristol Flora. — This grass is but little known in the vicinity of Bristol. Until last summer we supposed that it could not be found nearer than the Mendips to the south, or on Yate Common in the northern division of the district. *Molinia* is not mentioned in Swete's 'Flora Bristoliensis,' nor in any other list of Bristol plants with which I am acquainted: but in the Stephens Herbarium there are specimens from "Durdham Down," undated. Dr. Stephens was an accurate botanist, and his collection is excellent; but unluckily for those engaged in working out the distribution of local plants, he very rarely attached to his specimens the place and date of their collection. All that we knew, therefore, was that some thirty or forty years ago the grass had been gathered on our downs, and had since been apparently extirpated by some adverse influence. Consequently, in last September, I was not prepared to notice a large quantity of the plant flowering amongst the furze-bushes near the band-stand on Clifton Down, and also in another spot close to the fountain. The stems, being mostly a yard high, were noticeable at a distance, and, at the latter place, could be recognized from the road. Mr. Wheeler informs me that about the same time he likewise observed it on Durdham Down, near the Gully. It cannot be deemed possible that the conspicuous panicles of *Molinia*, had they been regularly produced season after season, could have escaped notice in spots so much frequented, and have been entirely overlooked by scores of botanists who have examined the locality of late years. Nor is it possible that the plant could be introduced, in such abundance, over so wide an area. To account for its resuscitation we must, I think, believe that this, like some other species, may be uncertain in flowering, and may require for its perfect development some unusual meteorological conditions. That a very wet summer following the great heat of 1887 induced the plants, which formerly had flowered but sparingly or not at all, to produce a luxuriant crop, is, I think, a reasonable explanation of an extremely curious circumstance. There is little doubt that other plants were similarly affected. I observe that whereas last spring the trees of *Populus tremula glabra*, in Leigh Woods, produced abundance of flowers, both barren and fertile, this year not a single catkin was to be seen upon them, and much the same thing has occurred with the hornbeams in Clifton.—James Walter White.

Corrections.—Since correcting the proof of my article upon Derbyshire Plants (p. 178), I have received a note from the Rev. W. R. Linton saying that *Rubus fissus* Lindl. grows in the habitat assigned to *R. suberectus* Anders., and that the latter is not to be seen there. I am also informed that there is no specimen of *R. suberectus* in Mr. Smith's herbarium at University College, Nottingham. *Hypericum linariifolium:* Prof. Babington says (p. 185) that I sent him this: it should be Mr. J. W. Carr, B.A., of University College, Nottingham.—W. Hunt Painter.

## NOTICES OF BOOKS.

*Annals of Botany.* Edited by I. B. Balfour, S. H. Vines, and W. G. Farlow. Vol. II., No. viii. 8vo, pp. 393–436, lxi.–cxxxviii. Price 7*s.* 6*d.* Vol. III., No. ix. 8vo, pp. 134, tt. 7. Price 11*s.* 6*d.* Oxford: Clarendon Press.

The latest issue, which, although dated February, did not make its appearance until the last days of June, completes the second volume of this handsomely printed addition to our periodical literature. It contains little more than a hundred pages of letterpress, the greater part of which is devoted to a "Record of Current Literature" for 1888, the remainder being occupied by a "Botanical Necrology" for the same year. There are no original contributions in the number, and the cost seems somewhat excessive.

It must be admitted, however, that, if the food be meagre and not too well served, there is an imposing array of cooks. The Editors have received assistance in almost every "necrology" from distinguished botanists of various lands, and even with this help, their modesty has rendered them unequal to the mere work of editing, without "great assistance" from Mr. George Murray. Since the days of the "ministry of all the talents," surely no such display of genius has been concentrated to produce so small a result; we must go further back for a parallel—as far, indeed, as the days when the mountain brought forth the mouse.

Two years ago, we criticised the first instalment of the "Record of Current Literature."* Every fault which we then pointed out is still manifest. The list of "Books and Pamphlets," arranged under the authors' names, seems to have been planned so as to give as little information as possible: neither the size or extent of the works is indicated; the place of publication, even, is not always given—the publisher and price, never; and puzzling entries, such as "Wood, Illustrated Natural History (in 15 parts). Part i. London" are to be met with.† In the "Periodical Literature," as before, no initials are given; misprints, though less abundant than of yore, are still frequent; no attempt is made to distinguish between different men bearing the same name, like the Bakers and Bennetts. There is a deliberate falsification of date by the inclusion of No. VII. of the 'Annals' among 1888 publications, for although dated "Nov. 1888," it did not appear until January of this year. There is no attempt at an index to the varied contents, not even a list of the periodicals cited: as an example of much labour to little purpose, this Record could hardly be surpassed.

The "necrology" is more useful; but the Editors have contrived to render it as little so as possible, and a lack of consistency is manifest throughout. Thus, in the Bibliography of Asa Gray, this Journal is cited in nine different ways, some of them entirely incorrect, and other variations in citation occur elsewhere. In no case is the page given when reference is made to a periodical publication; the result being that another index must be consulted, although the present would suffice if the page were added. The arrangement is sometimes by subject, sometimes chronological: complete works sometimes precede papers, at others are mixed up with them; when another author has united with the subject of the bibliography in the production of any book, the joint works are sometimes at the end, sometimes in the middle, sometimes it is impossible to decide where the joint authorship begins and ends (see p. 410). Of course the large amount of co-operation received is to some extent accountable for this; but could not the three Editors reduce the material to some uniform arrangement? The information regarding each botanist is useful, but meagre, although at times superfluous, as when we are told, *tout court*, that L. Forquignon was "Born"—which we might have assumed from the fact that the date of his death is recorded. But here again we try in vain to discover any principle of working: for example, the memoir of Dr. Boswell given in this Journal is cited, but others published by us are omitted. The bibliography in this instance, taken bodily from the Royal Society's 'Catalogue,' is incomplete.

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* Journ. Bot. 1887, 316.

† This probably means that the work, when completed, will consist of 15 parts, and that part i. has been issued. But it is merely a reissue of a very well-known work, and has no more to do with botany than mathematics Do the Editors suppose that this is an anonymous treatise on Timber?

The first name on the list is that of Ährling, the well-known student of matters relating to Linnæus, who, indeed, edited some of Linné's hitherto unpublished MSS., but was in no sense a botanist. The "Flora Dalekarlica," attributed here to Ährling, is printed from Linné's MS., dated 1734, although any one would imagine, from the way in which it occurs in the 'Annals,' that it was a work of Ährling's, published in 1873. Hennecart (1797–1888) is included, we presume, on some grounds known to the editors; no reason for his inclusion is assigned, unless this is conveyed in the title "Proprietor" appended to his name: proprietor of *what?* Asa Gray occupies thirteen pages: but this elaborate enumeration is quite unnecessary in the face of the excellent list of his writings issued as an appendix to vol. xxxvi. of the 'American Journal of Science,' of which this seems to be a clumsy and incomplete rearrangement, with several added errors. The original list is chronologically arranged and fully indexed, and is thus readily consultable: the Editors of the 'Annals' have succeeded in reducing it to a complicated puzzle, to which they have provided no key.

Criticism of this kind is capable of almost indefinite extension, for which the Editors of the 'Annals' have provided abundant material. We may adopt as our summary of the Bibliography in the 'Annals' the words of the preface prefixed by Mr. Burnand to his 'New Sandford and Merton'—"Other books will [show] you what to *do:* this book will [show] you what to *don't*."

The first part of the new volume (dated February, and issued in March of the present year) contains many papers of interest, already enumerated at p. 126. We are somewhat surprised, however, to find in so high-class a Journal such a paper as that on "Abnormal Ferns, Hybrids, and their Parents," by Mr. E. J.

Lowe and the late Colonel Jones. So far as the evidence given is concerned, there is absolutely no proof that the so-called "hybrids" are of hybrid origin, and the accompanying plate in no way confirms the hybrid theory. The authors refer to an essay on the subject which was submitted to the Linnean Society in 1881 (not "1884," as stated in the 'Annals'), and of which the title only appeared in print (Proc. Linn. Soc. 1880–82, p. 6): we are at a loss to understand how a paper, which does not rise at all above the level of 'Science-Gossip,' should be admitted into a Journal having the lofty aims of the 'Annals.'

In the interests of "law and order," attention must be called to a grave error in the practice of nomenclature, perpetrated in an interesting paper on a new development of *Ephelis*, by Messrs. Cooke and Massee. This new development is here formally described both as *E. trinitensis* and also under *Balansia* as *B. trinitensis*, the following astonishing reason being assigned for this course of action:—"As in other cases of proven dimorphism, the stylosporous form and the ascigerous form have still been retained separately under their respective genera; so in this case, although not autonomous, as will hereafter be seen, the *Ephelis*-form deserves a place beside the other species in that genus under the name of *Ephelis trinitensis* Cooke & Massee."

What this comes to is simply that the authors, instead of taking this proper opportunity of sinking a genus, have seized the occasion to increase the number of specific names by the unwarrantable act of describing the same species under two genera! The practice "in other cases of proven dimorphism" is surely the reverse among all respectable systematists, and it is to be hoped that the 'Annals' will not again lend itself to a down-grade movement in this direction.

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We have only space this month to call attention to the important and useful addition to our tourists' floras of a translation by Mr. L. W. Paitson of Gremli's 'Excursionsflora,' which has just been published by Mr. David Nutt under the title, 'Flora of Switzerland for the use of tourists and field-botanists.' The book is a handy pocket volume, bound in limp cloth, and well printed; its cost is 7*s.* 6*d.* We hope to notice it at length in an early issue, but mention it now in order to bring it under the notice of botanists whose holiday tours may lie among the Swiss mountains.

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## Articles in Journals.

*Botanical Gazette* (June).—H. L. Bolley, 'Sub-epidermal Rusts' (1 plate). — J. N. Rose, 'Achenia of *Coreopsis*' (1 plate). — B. D. Halsted, 'Sensitive stamens in *Compositæ*.'

*Bot. Centralblatt.* (Nos. 27, 28). — A. Thomaschek, 'Ueber die Verdickungsschichten an Künstlich hervorgerufenen Pollenschläuchen von *Colchicum autumnale*.'

*Bot. Zeitung* (June 21, 28; July 5). — W. L. Peters, 'Die

Organismen des Sauerteigs und ihre Bedeutung für die Brotgährung.'—(July 12). J. Wortmann, 'Ueber die Beziehungen der Reizbewegungen wachsender Organe zu der normalen Wachsthumsercheinungen.'

*Bull. Torrey Bot. Club* (July). — F. L. Harvey, 'Freshwater Algæ of Maine.' — N. L. Britton, 'Rusby's S. American Plants' (*Protium Bolivianum*, *Thouinia coriacea*, *Rourea* (?) *Bakerana*, spp. nn.).—J. H. Redfield, '*Corema* in New Jersey.'

*Gardeners' Chronicle* (July 6). — '*Rosa berberidifolia*' (figs. 1, 2). — 'History of English Gardening' (contd.). — '*Amorphophallus Titanum*' (figs. 3, 5, 6).—(July 13). *Ornithogalum apertiflorum* Baker, *Fritillaria hericaulis* Baker, spp. nn.—(July 20). *Anthurium cymbiforme* N. E. Br., *Odontoglossum Hunnewellianum* Rolfe, spp. nn. — (July 27). *Albuca trichophylla* Baker, sp. n.

*Journal de Botanique* (June 16). — P. A. Karsten & P. Hariot, 'Fungi nonnulli Gallici' (*Hariotia*, gen. nov.). — L. du Sablon, 'Sur l'endoderme de la tige des Sélaginellés.'—P. Maury, 'Plantes du Haut-Orénoque' (*Rhynchospora elegantula*, sp. n.).

*Midland Naturalist* (July). — W. Mathews, 'County Botany of Worcester' (contd.).

*Nuovo Giornale Bot. Italiano* (July). — J. Müller, 'Lichenes Sebastianopolitani lecti a cl. Dr. Glaziou.' — A. Bottini, 'Sulla struttura dell' Oliva' (2 plates). — R. Farneti, 'Enumerazione dei Muschi del Bolognese.' — A. Goiran, 'Sulla estrazione del Vischio o Pania da *Viburnum Lantana*, &c.' — Id., 'Di una singolare esperienza praticata sopra le corolle di *Cyclamen persicum*.' — G. Arcangeli, 'Sullo sviluppo di colore dovuto alla respirazione nei ricettacoli dei Funghi.' — Id., 'Sopra un caso di sinanzia osservato nella *Saxifraga crassifolia*.'— U. Mantelli, 'Sulla *Chamærops humilis* var. *dactylocarpa*.'—C. Massalongo, *Taphrina Oreoselini*, n. sp.—Id., *Lejeunea Rosettiana*, n. sp. — L. Macchiati, 'Le sostanze coloranti degli strobili dell' *Abies excelsa*.' — E. Taufani, '*Viscum album* & *V. laxum*.' — Id., 'Sopra alcune specie e varietà di *Dianthus*.' — E. Gelmi, 'Contribuzione alla flora dell' isola Corfù.' — F. Panizzi, '*Moehringia frutescens*.'

*Oesterr. Bot. Zeitschrift* (July).—T. v. Heldreich, 'Die *Malabaila*-Arten der griechischen Flora.' — R. v. Wettstein, '*Erysimum* & *Cheiranthus*' (1 plate). — L. Celakovský, '*Potentilla Lindackeri* & *P. radiata*.' — Id., '*Thymus quinquecostatus*, sp. n.' — P. Ascherson, 'Synonymie der *Eurotia ceratoides*.'—P. Dietel, 'Ueber die Aecidien von *Melampsora Euphorbiæ dulcis* & *Puccinia silvatica*.'—C. Lippitsch, 'Ueber das Einreisen der Laubblätter der Musaceen und einiger verwandter Pflanzen.'

*Scottish Naturalist* (July).—Arthur Bennett, 'Records of Scottish Plants in 1888.' — J. W. H. Trail, 'Revision of Scotch Discomycetes.'

# CATALOGUE OF THE MARINE ALGÆ OF THE WEST INDIAN REGION.

By George Murray, F.L.S.

(Continued from p. 242.)

### Conferveæ.

Chætomorpha tortuosa Kütz. Barbadoes, *Dickie*! Guadeloupe, *Mazé*!
*Geogr. Distr.* Atlantic (Europe), Mediterranean, United States.
C. implexa Kütz. Guadeloupe, *Mazé*!
Var. Montagneana Kütz. Guadeloupe, *Mazé*! Cuba, *R. de la Sagra*.
*Geogr. Distr.* N. Atlantic and Mediterranean.
C. Javanica Kütz., f. tenuis Crn. Guadeloupe, *Mazé*!
*Geogr. Distr.* Java.
C. gracilis Kütz. Guadeloupe, *Mazé*!
Var. tenuior Crn. Guadeloupe, *Mazé*!
*Geogr. Distr.* N. Atlantic and Mediterranean.
C. linoides Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Atlantic and Pacific.
C. chlorotica Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean.
C. Linum Kütz. Cuba, *R. de la Sagra*.
*Geogr. Distr.* North Sea and Atlantic.
C. Dubyana Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Southern shores of France.
C. vasta Kütz. Guadeloupe, *Mazé*!
Var. inflata Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean.
C. aerea Kütz. Barbadoes, *Dickie*! Bermuda, '*Challenger*'!
*Geogr. Distr.* Mediterranean, Atlantic shores of Europe, Canaries, United States, Australia.
C. Billardierii Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Australia.
C. pachynema Mont. Guadeloupe, *Mazé*!
*Geogr. Distr.* Canary Islands.
C. antennina Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Indian Ocean and S. Pacific.
C. media Kütz. Guadeloupe, *Mazé*!
C. intestinalis Kütz. Guadeloupe, *Mazé*!
C. brachygona Harv. Florida, *Harvey*, *Melvill*. Mouth of the Rio Bravo, *Schott*.
C. geniculata Mont. Guadeloupe, *Mazé*! Bermuda, *Rein*.
*Geogr. Distr.* Cayenne.
C. breviarticulata Zanard. Guadeloupe, *Mazé*!
C. submarina Crn. Guadeloupe, *Mazé*!
C. lanosa Crn. Guadeloupe, *Mazé*!
C. tenuissima Crn. Guadeloupe, *Mazé*!
Rhizoclonium Antillarum Kütz. Cuba, *R. de la Sagra*.

R. SUBRAMOSUM Crn. Guadeloupe, *Mazé*!
R. SARGASSICOLUM Crn. Guadeloupe, *Mazé*!
f. TENUIS Crn. Guadeloupe, *Mazé*!
f. SPIRALIS Crn. Guadeloupe, *Mazé*!
HORMOTRICHUM BERMUDIANUM Harv. Bermuda, *Rein.*
CLADOPHORA HOSPITA Kütz., var. NUDA Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Cape of Good Hope.
C. COMOSA Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* North Sea.
C. PROLIFERA Kütz. Barbadoes, *Dickie*! Guadeloupe, *Mazé*! Bermuda, '*Challenger*.'
*Geogr. Distr.* Mediterranean.
C. PELLUCIDA Kütz. Bermuda, *Kemp.*
*Geogr. Distr.* N. Atlantic and Mediterranean.
C. ALYSSOIDEA Menegh. Guadeloupe, *Mazé*!
Var. GRACILLIMA Crn. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean.
C. MACALLANA Harv. Guadeloupe, *Mazé*!
*Geogr. Distr.* Britain.
C. FASCICULARIS Kütz. Grenada, *Murray*! Barbadoes, *Dickie*! Guadeloupe, *Mazé*! Cuba, *R. de la Sagra.*
f. DENUDATA Crn. Guadeloupe, *Mazé*!
f. GLOMERATA Crn. Guadeloupe, *Mazé*!
C. FASCICULARIOIDES Crn. Guadeloupe, *Mazé*!
C. OVOIDEA Kütz. Guadeloupe, *Mazé*!
f. CRASSICAULIS Crn. Guadeloupe, *Mazé*!
*Geogr. Distr.* North Sea.
C. LAXA Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean.
C. ANISOGONA Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Toud Island.
C. ECKLONI Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Cape of Good Hope.
C. SERTULARINA Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Cayenne.
C. MAURITIANA Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Indian Ocean.
C. LÆTEVIRENS Kütz. Bermuda, *Rein.*
*Geogr. Distr.* North Sea.
C. ALBIDA Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Britain.
C. CRYSTALLINA Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* North Sea, N. Atlantic, and Mediterranean.
C. FLAVESCENS Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* North Sea and N. Atlantic.
C. LUTESCENS Harv. Bermuda, *Rein.*
Var. LONGIARTICULATA. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean.
C. GRACILIS Kütz. Guadeloupe, *Mazé*! Bermuda, *Kemp.*
*Geogr. Distr.* North Sea and N. Atlantic.
C. GLAUCESCENS Griff. Bermuda, *Rein.*
*Geogr. Distr.* North Sea and N. Atlantic.

C. RUDOLPHIANA Harv. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean and N. Atlantic.
C. RUCHINGERI Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean.
C. TRANQUEBARENSIS Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Indian Ocean.
C. TRICHOTOMA Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* North Sea.
C. MEMBRANACEA Kütz. Barbadoes, *Dickie*! Guadeloupe, *Mazé*! Santa Cruz (*fide Kützing*). Florida, *Harvey*, *Melvill*! Bermuda, *Rein*.
Var. CÆSPITOSA Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Teneriffe.
C. COMPOSITA Hook. et. Harv. Guadeloupe, *Mazé*!
*Geogr. Distr.* Indian Ocean.
C. ENORMIS Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Canary Islands.
C. REPENS Kütz. Grenada, *Murray*! Guadeloupe, *Mazé*! Florida, *Harvey*, *Melvill*!
*Geogr. Distr.* Mediterranean.
C. SOCIALIS Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Pacific.
C. TRINITATIS Kütz. Trinidad (*fide Kützing*).
C. STRICTA Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* North Sea.
C. HORMOCLADIA Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* N. Atlantic.
C. CRASSICAULIS Crn. Guadeloupe, *Mazé*!
C. CHAROIDES Chauv. Guadeloupe, *Mazé*!
C. BRYOIDES Kütz. Guadeloupe, *Mazé*!
C. CONFERTA Crn. Guadeloupe, *Mazé*!
C. DICHOTOMO-DIVARICATA Crn. Guadeloupe, *Mazé*.
C. ZOSTERICOLA Crn. Guadeloupe, *Mazé*!
C. OBTUSATA Zanard. Guadeloupe, *Mazé*!
C. SUBMARINA Crn. Guadeloupe, *Mazé*!
C. DELICATULA Mont.? Guadeloupe, *Mazé*!
*Geogr. Distr.* Cayenne.
C. CRUCIGERA Grunow. Guadeloupe, *Duchassaing*, *Mazé*!
C. LUTEOLA Harv. Cuba, *Wright*. Florida, *Harvey*. Bermuda, *Rein*, '*Challenger*'!
C. CROUANII nob. = C. LUTEOLA Crn. Guadeloupe, *Mazé*! The specific name *luteola* is already used by Harvey.
C. CATENATOIDES Crn. Guadeloupe, *Mazé*!
C. GLEBIFERA Kütz., var. OCCIDENTALIS Crn. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean.
C. MEXICA Crn. Guadeloupe, *Mazé*!
C. BRASILIANA Mart. Guadeloupe, *Mazé*!
*Geogr. Distr.* Brazil.
C. GRACILLIMA Crn. (non Kütz.). Guadeloupe, *Mazé*!
C. VIRGATULA Grunow. Guadeloupe, *Duchassaing*, *Mazé*!
C. SUBTILIS Kütz. Guadeloupe, *Mazè*!

[Kützing places under *Cladophora*, among *species inquirendæ*, the *Conferva bicolor* Mert. et Swartz, from Jamaica (*Swartz*), but remarks, "forte non hujus generis." It is also recorded from Guadeloupe by *Mazé*!]

### ULVEÆ.

ENTEROMORPHA INTESTINALIS Lk. Grenada, *Murray*! Guadeloupe, *Mazé*!
*Geogr. Distr.* Atlantic and Mediterranean.

E. LINZA J. Ag. Bermuda, *Kemp*, *Rein*.
*Geogr. Distr.* N. Atlantic (Tasmania ?).

E. COMPRESSA Grev. Grenada, *Murray*! Barbadoes, *Dickie*! Guadeloupe, *Mazé*! Florida, *Melvill*! (Harvey gives its distribution for N. America as general). Bermuda, *Rein*, '*Challenger*.'
*Geogr. Distr.* General.

E. MARGINATA J. Ag. Guadeloupe, *Mazé*!
Var. LONGIOR Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean.

E. PERCURSA J. Ag. Guadeloupe, *Mazé*! Bermuda, *Rein*.
*Geogr. Distr.* Atlantic, Mediterranean, North Sea.

E. CLATHRATA J. Ag. Guadeloupe, *Mazé*! Cuba, *R. de la Sagra*. Bermuda, *Kemp*.
Var. CONFERVOIDEA. Cuba, *R. de la Sagra*.
*Geogr. Distr.* N. Atlantic, North Sea, Tasmania, and New Zealand.

E. COMPLANATA Kütz. Guadeloupe, *Mazé*!
Var. CRINITA Kütz. Guadeloupe, *Mazé*!
Var. CONFERVACEA Kütz. Guadeloupe, *Mazé*!

E. CONTORTA Crn. Guadeloupe, *Mazé*!

ULVA LATISSIMA L. Grenada, *Murray*! Barbadoes, *Dickie*! Guadeloupe, *Mazé*! Bermuda, *Kemp*, *Rein*, '*Challenger*' omitted from list.
Var. LOBATA Crn. Guadeloupe, *Mazé*!
*Geogr. Distr.* N. Atlantic, North Sea, Mediterranean.

U. LÆTEVIRENS Aresch. Guadeloupe, *Mazé*!
*Geogr. Distr.* Australia.

U. RIGIDA Ag. Grenada, *Murray*! Guadeloupe, *Mazé*! Cuba, *R. de la Sagra*. Indianola (Texas), *Schott*. Bermuda, *Kemp*, *Rein*.
*Geogr. Distr.* General in warm seas.

U. FASCIATA Delile. Barbadoes, *Dickie*! Guadeloupe, *Mazé*! Gulf of Mexico, *Schott*.
*Geogr. Distr.* General in warm seas.

U. LOBATA Crn. Guadeloupe, *Mazé*!

PHYCOSERIS BELANGERI Mont. Martinique, *Belanger*.

MONOSTROMA ORBICULATUM Thuret. Bermuda, *Farlow*! (in Farlow, Anderson and Eaton, No. 173).

## IV.—PROTOPHYCEÆ.

Schizosiphon pilosus Crn. = Calothrix pilosa Harv. Guadeloupe, *Mazé*! Florida, *Harvey*, *Melvill.*
Calothrix submarina Crn. Guadeloupe, *Mazé*!
C. dura Harv. Florida, *Harvey.*
Scytonema submarinum Crn. Guadeloupe, *Mazé*!
S. coactile Mont. In mari Antillarum, *Perrottet.*
Masticнonema Sargassi Crn. Guadeloupe, *Mazé*!
Lyngbya nemalionis Zan., var. flaccida Rabenh. Guadeloupe, *Mazé*!
L. Dalmatica Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean.
L. schowiana Kütz. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean and North Sea.
L. luteo-fusca J. Ag. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean.
L. crispa Ag. Guadeloupe, *Mazé*!
*Geogr. Distr.* All European shores.
L. majuscula Harv. Grenada, *Murray*! Guadeloupe, *Mazé*! Florida, *Harvey.* Bermuda, *Rein*, '*Challenger*'! omitted from list.
*Geogr. Distr.* European shores.
L. erosa Liebm. Guadeloupe, *Mazé*! Gulf of Mexico, *Liebman.*
L. anguina Mont. Guadeloupe, *Mazé*!
*Geogr. Distr.* Toud Island.
L. major Kütz. Guadeloupe, *Mazé*!
Var. crassa Crn. Guadeloupe, *Mazé*!
*Geogr. Distr.* Mediterranean.
L. fluitans Hering. Guadeloupe, *Mazé*!
*Geogr. Distr.* Cape of Good Hope.
L. cantharidosma Mont. Guadeloupe, *Mazé*!
*Geogr. Distr.* Canary Islands.
L. hyalina Harv. Florida, *Harvey.*
L. æstuarii Aresch. Guadeloupe, *Mazé*!
*Geogr. Distr.* United States.
L. rigidissima Zan. Guadeloupe, *Mazé*!
L. maxima Mont. Guadeloupe, *Mazé*!
L. gracilis Menegh. Guadeloupe, *Mazé*!
L. violacea Menegh. Guadeloupe, *Mazé*!
L. cæruleo-violacea Crn. Guadeloupe, *Mazé*!
L. sordida Crn. Guadeloupe, *Mazé*!
L. compacta Crn. Guadeloupe, *Mazé*!
L. mucosa Crn. Guadeloupe, *Mazé*!
L. littoralis Crn. Guadeloupe, *Mazé*!
L. bostrychicola Crn. Guadeloupe, *Mazé*!
L. cyanea Crn. Guadeloupe, *Mazé*!
L. latilimba Crn. Guadeloupe, *Mazé*!
L. agglutinata Crn. Guadeloupe, *Mazé*!
Microcoleus oligothrix Crn. Guadeloupe, *Mazé*! (brackish water).
M. corymbosus Harv. Florida, *Harvey.*

CHTHONOBLASTUS LYNGYEI Kütz. = MICROCOLEUS MARITIMUS Bory.
Cuba, *R. de la Sagra.*
*Geogr. Distr.* N. Atlantic.
OSCILLARIA MINIATA Crn. Guadeloupe, *Mazé.*
O. FUSCO-RUBRA Crn. Guadeloupe, *Mazé*!
O. CORALLICOLA Crn. Guadaloupe, *Mazé*!
O. HYDRURIMORPHA Crn. Guadeloupe, *Mazé*!
O. CÆRULESCENS Crn. Guadeloupe, *Mazé*!
O. SYMPLOCARIOIDES Crn. Guadeloupe, *Mazé*!
O. GLUTINOSA A. Br. Guadeloupe, *Mazé.*
O. STRAGULUM Rabenh. Guadeloupe, *Mazé*!
SPHÆROZYGA MICROCOLEIFORMIS Crn. Guadeloupe, *Mazé*!
ONCOBYRSA GUADELUPENSIS Crn. Guadeloupe, *Mazé*!

(To be continued.)

## *MUNDIA* KUNTH V. *MUNDTIA* HARV.

By JAMES BRITTEN, F.L.S.

PFEIFFER ('Nomenclator,' ii. 370) notes on the name *Mundia:* "Dicat. Henr. Mundio, Oxoniensi." In looking up names for our 'Botanical Biography,' we have failed to find any corroboration of this derivation, nor do we know the claims of Henry Mundy, who published a treatise, 'De aere vitali,' &c., at Oxford in 1680, to commemoration. But it has become apparent that the name is, in modern books, misspelt; and it may be well to point this out, so that the error may henceforth be avoided.

The genus *Mundia* was founded by Kunth (Nov. Gen. v. 392 (1821)) on *Polygala spinosa* L. It was so written by DeCandolle and subsequent authors until 1838, when Harvey deliberately altered the spelling, giving the following justification of his course of action:—"Kunth has omitted to explain the generic name, which he, as well as DeCandolle and others, write 'Mundia.' I have ventured to make a slight change in the spelling, as I presume it is intended to commemorate the services rendered to Botany by M. Mundt, a most meritorious collector of South-African plants; and wherever a plant is called after an individual, it is desirable to retain the spelling as nearly as possible."—(Harvey, Gen. S. Afr. Plants, 26).

It is generally admitted, and there is no need therefore to enter at length into the subject, that the view held by Harvey is untenable; and no one would now urge its adoption. We are all agreed about *Cinchona;* though it will be long before *Malcomia* and *Mathiola*, for example, replace the forms in which these names are usually presented in botanical works. Other instances of error might easily be cited,—*Macnabia*, for instance, by which Mr. Bentham deliberately superseded the earlier *Nabea* of Lehmann (1831), for a reason analogous to that by which Harvey justifies his alteration of *Mundia*—"Nomen cl. Macnabio curatori indefesso horti Edinburgensis Ericarum cultivatori diligentissimo dicatum, paullulum mutavi, dum particula Mac nequaquam separabilis sit" (Benth. in DC. Prod. vii. 612 (1839).

In the case of *Mundtia*, Harvey's alteration has been generally accepted. Bentham and Hooker (Gen. Pl. i. 137) do not even cite the true spelling as a synonym, nor does it appear in Harvey's 'Fl. Capensis,' nor in Durand's 'Index Generum.' Pfeiffer, on the other hand, entirely ignores the alteration; he does not give *Mundtia*, even as a spelling of *Mundia*.

I have not been able to find further information concerning either Henry Mundy or "M. Mundt": can any reader supply it? Don (Gen. Syst. i. 366) gives another derivation for the word: "from *mundus*, neat; appearance of plants."

In neither of the above cases will there be any serious addition to synonymy; the names standing thus:—

NABEA Lehm. (1831) (*Macnabea* Benth. (1839).
*N. montana* Lehm. (*M. montana* Benth.).
MUNDIA Kth. (1821) (*Mundtia* Harv. (1838).
*M. spinosa* DC. Prod. i. 338 (1824).

Kunth founded the genus *Mundia* on *Polygala spinosa* L., but did not formally apply that specific name to the plant, so that the species takes DC. as its authority.

# THE SYNONYMY OF *POTAMOGETON ZIZII* ROTH.

### BY ARTHUR BENNETT, F.L.S.

IN this Journal for 1879 (p. 291), Dr. Trimen, in an admirable article on this plant as a British species, remarks in a footnote that he has been unable to trace the "*P. angustifolium* Presl, *fide* Fieber," saying, "this is not improbably an earlier name." Like Dr. Trimen, I made attempts to do so, but unsuccessfully, until, looking over the preface to Berchtold and Seidls' 'Flora Böhmens' (1836), I found the key to the difficulty. They there mention a work written entirely in Czech, as published in "1820," which is not to be found either in Pritzel or Jackson's 'Guide.' It is entitled 'O Prirozenosti Rostlin aneb Rostlinár. 1823. Prague,' by B. W. Hrab Berchtold and J. S. Presl.

The date, 1820, seems to have been an error, as the title-page bears the date 1823. From various sources of information, I am inclined to think the fascicles 1 to 10 were published in 1821, and the whole probably republished in 1823. By the kindness of Dr. L. Celakovsky, of Prague, I am enabled to give a translation of the description of *P. angustifolium*, as given in the 'Rostlin':—"Folia alterna, lineari-lanceolata acuta, stipulis angustiora, pedunculi incrassati folio duplo longiores, caules teretes. — Crescit in piscinis et stagnis ad Bohdanec, ubi a dom. Opiz inventum."

Dr. Celakovsky points out that Presl's description is imperfect, while that of Mertens and Koch is very clear. There exists no specimen of Presl's plant at either of the public herbaria in Prague. No doubt, as the name is taken up in Opiz 'Böhmens phanerog. und cryptogam. Gewachse,' 1823, p. 23, in Kosteletzky's 'Clavis anal. Floram Bohemiæ phanerog.,' 1824, p. 24, and again by Fieber in 1838, it does apply to that form of *Zizii* which is called *elongatus*. This matter, however, only affects the plant *when named as a species.*

Reichenbach, in his 'Icones Fl. Germ. et Helv.,' vol. vii., mentions that it is the *P. lanceolatus* of Wolfgang. I can find no publication of this name by Wolfgang; it probably will be found in his MS. monograph of the genus in the Moscow Society's Library, which Trautvetter, in his 'Fl. Ross. Fontes,' 1880, says he has not seen.

These refer to the plant as a *species.* As a variety it has been placed under both *lucens* and *heterophyllus;* apparently the earliest date to which it can be traced as a variety is in Pohl's 'Tentamen Flora Bohemiæ,' 1810, p. 157, where it occurs as "*P. lucens β.* fol. angustioribus"; if this is held inadmissible as a name, the next seems to be *P. lucens β. nitens* (Willd. sp. ined.), Chamisso, in Adnot. ad Fl. Berol., p. 6, 1815. There is a specimen of this in the General Herbarium at Berlin, which is clearly *Zizii*! Chamisso remarks on this, "Varietas nec species."

Following this there is what I believe to be a reference to *P. Zizii* in Gray's Nat. Arrangement of Brit. Plants, v. 2, 1821, p. 34, where a "*β. angustifolius*" is given under *lucens*, with a reference to Ray's "P. folio angusto, pellucido, fere gramineo, Syn. 148, 3." Ray's name is quoted under *lucens* in Sir J. E. Smith's Fl. Brit. 1800, p. 195, and under *heterophyllus* in his Engl. Flora, ed. 2, vol. i. p. 230, in both cases with a mark of doubt. There seems to me no doubt that the Engl. Bot. fig. t. 376 of *lucens* is decidedly nearer *Zizii.* Chamisso notes this, saying, "*P. lucens*, Engl. Bot. t. 376, est *P. Proteus lucens* forma *Zizii* vergens."

Under *heterophyllus* it seems to have been published under two names in the same year (1823) by Mertens and Koch, in Röhling's Deutsch. Fl. vol. i. p. 845, as var. *latifolius;* and in Schlechtendal's Fl. Berol. p. 116, as var. *fluviatilis.* Röhling's Flora slightly precedes Schlechtendal's in date.

Coming to later times, there is in Blytt's 'Norges Flora,' 1861, p. 364, a "*lucens? β. angustifolius,*" which the author thought might be the *P. longifolius* of Gay. By the kindness of Prof. A. Blytt, I have an original specimen of the plant of his father, and can say it is not the plant of Gay, but is a *Zizii* form, corresponding exactly with the "*P. lucescens*" of Dr. Tiselius, of which the author says, "sine dubio forma *P. Zizii* Met. K."

*P. Zizii* is widely spread over the world; in Europe from Norway! to Hungary! (or perhaps Italy); in Asia rare; in Africa very rare; and in N. America occurring from 57° N. lat. (*J. M. Macoun*!), south to Cuba (*C. Wright*!), and Florida (*Torrey herb. fide Morong*).

The following is a list of the principal forms under which it appears in various works:—

*Potamogeton lucens β.* fol. angustioribus, Pohl. Fl. Böh. 1810, p. 157.
*P. lucens* v. *nitens* (Willd. sp. !) Cham. in Ad. Fl. Berol. p. 6, 1815.
? *P. lucens* v. *angustifolium* Gray, Nat. Arr. Brit. Pl. 1821, p. 34.
*P. angustifolius* Berch. et Presl. Rostlin, p. 19 (1821 ?), 1823.
*P. angustifolius* Opiz, Böh. Gew. p. 23, 1823.
**P. heterophyllus latifolius* Mert. & Koch, Röhling's Deut. Fl. 1823, i. p. 845.
*P. heterophyllus β. fluviatilis* Schlecht. Flora Berol. p. 116, 1823.
*P. Proteus Zizii* Cham. et. Sch. Linnea, 2, p. 201, 1827.
*P. Zizii* Roth, Enum. Plant. Germ. 1, p. 531, 1827.
*P. lucens* v. *heterophyllus* Fries, Nov. Fl. Suec. ed. 2, p. 34, 1828.
*P. gramineus* v. *platyphyllus* Meyer, Ch. Hann. p. 520, 1836.
*P. gramineus* v. *Zizii* Koch, Syn. Fl. G. et Helv. ed. 2, p. 778, 1844.
*P. lanceolatus* Wolf. (et Gorski) ap Reich. Fl. Ic. G. et Helv. vol. vii. 1845.
*P. heterophyllus* v. *Zizii* Boreau, Fl. Cent. Fr. ed. 3, p. 600, 1857.
*P. lucens ? β. angustifolius* Blytt, Norges Fl. p. 365, 1861.
*P. lucens* v. *Zizii* Ascherson, Fl. Brandenb. p. 660, 1864.
*P. rufescens* Pesn. ! ex Lloyd, Fl. Ouest. Fr. p. 293, 1876.
*P. lucens* v. *Zizii* Blytt, Norges Fl. Supp. p. 1277, 1877.
*P. Zizii* C. & S.; Baker, Rep. Ex. Club for 1878, p. 19.
*P. Zizii* Boreau; Lees, Record Club Rep. for 1878.
*P. lucens* subsp. *Zizii* M. et K.; Nyman, Consp. Fl. Europ. p. 682, 1882.
*P. lucens* subsp. *Zizii* Hook. f. Stud. Fl. ed. 3, p. 433, 1884.
*P. lucens* v. *minor* Nolte in Hansen's Exsicc. No. 521.
*P. serratus* L. Sp. Pl.; Nolte in Hansen's Exsicc. No. 1114 (Herb. Mus. Brit. !).

# A LIST OF BRITISH WILLOWS.

By F. Buchanan White, M.D., F.L.S.

The following list shows the arrangement of our Willows which I proposed in a paper read before the Linnean Society on June 6th:—

## A. Pleiandræ.

### 1. *Triandræ.*

1. Salix triandra *L.*
    - × S. decipiens *Hoffm.* (triandra × fragilis).
    - × S. undulata *Ehrh.* (triandra × viminalis).

### 2. *Pentandræ.*

2. S. pentandra *L.*
    - × S. cuspidata *Schultz* (pentandra × fragilis).
    - × S. hexandra *Ehrh.* (pentandra × alba).

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* I am indebted to Dr. Schumann, of Berlin, for the exact date of Röhling's Deut. Flora.

### 3. *Fragiles.*

3. S. FRAGILIS *L.*
    *b.* britannica *B. White.*
4. S. ALBA *L.*
    *b.* vitellina (*L.*).
    × S. viridis *Fr.* (fragilis × alba).

## B. DIANDRÆ.

### 4. *Capreæ.*

5. S. CINEREA *L.*
6. S. AURITA *L.*
    × S. lutescens *A. Kern.* (cinerea × aurita).
7. S. CAPRÆA *L.*
    × S. Reichardtii *A. Kern.* (Caprea × cinerea).
    × S. capreola *J. Kern.* (Caprea × aurita).

### 5. *Repentes.*

8. S. REPENS *L.*
    × S. ambigua *Ehrh.* (repens × aurita).
    × S. cinerea-repens *Wimm.*
    × S. Caprea-repens *Lasch.*
    × S. nigricans-repens *Heidenr.*

### 6. *Phylicifoliæ.*

9. S. PHYLICIFOLIA *L.*
    *a.* S. phylicifolia *L., Auct.*
    *b.* S. nigricans *Sm.*
    *c.* S. phylicifolia-nigricans *Wimm.*
    × S. laurina *Sm.* (phylicifolia × Caprea).
    × S. Wardiana (*Leefe MS.*) *B. White* (phylicifolia × cinerea).
    × S. ludificans *B. White* (phylicifolia × aurita).
    × S. tephrocarpa *Wimm.* (phylicifolia × Caprea × cinerea).
    × S. latifolia *Forbes* (nigricans × Caprea).
    × S. strepida *Forbes* (nigricans × cinerea).
    × S. coriacea *Forbes* (nigricans × aurita).
10. S. ARBUSCULA *L.*
    × S. Dicksoniana *Sm.* (Arbuscula × phylicifolia).

### 7. *Viminales.*

11. S. VIMINALIS *L.*
    × S. Smithiana *Willd.* (viminalis × the Capreæ).
        *a.* stipularis (*Sm.*).
        *b.* sericans (*Tausch.*).
        *c.* velutina (*Schrad.*).
        *d.* ferruginea (*G. And.*).
        *e.* acuminata (*Sm.*).

### 8. *Niveæ.*

12. S. LANATA *L.*
    × S. Sadleri *Syme* (lanata × reticulata).
    × S. stephania *B. White* (lanata × herbacea).

13. S. LAPPONUM *L.*
    *b.* helvetica (*Vill.*).
    × S. spuria *Willd.* (Lapponum × Arbuscula).

9. *Nitidulæ.*

14. S. MYRSINITES *L.*
    × S. Wahlenbergii *And.* (Myrsinites × nigricans).
    × S. serta *B. White* (Myrsinites × Arbuscula).
15. S. HERBACEA *L.*
    × S. Grahami (*Borr.*) *Baker.* (herbacea × phylicifolia).
    × S. Moorei "*Watson L. C.*" (herbacea × nigricans).
    × S. simulatrix *B. White* (herbacea × Arbuscula).
    × S. sobrina *B. White* (herbacea × lapponum).
    × S. margarita *B. White* (herbacea × aurita).
16. S. RETICULATA *L.*
    × S. semireticulata *B. White* (reticulata × nigricans).
    × S. sibyllina *B. White* (reticulata × lapponum).

C. SYNANDRÆ.

10. *Purpureæ.*

17. S. PURPUREA *L.*
    × S. rubra *Huds.* (purpurea × viminalis).
    × S. sordida *Kern.* (purpurea × cinerea).
    × S. dichroa *Döll.* (purpurea × aurita).

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# *HEPATICÆ* OF CO. WICKLOW.

By DAVID McARDLE.

"THE Dargle River Lejeuneas are mostly *Eu-L. flava*, which is evidently by far the commonest Irish *Lejeunea*."

So writes my friend Mr. M. B. Slater, an accomplished authority on these difficult plants. Amongst 24 letter-packets of *Lejeunea* submitted to him for examination, which I and Mr. R. W. Scully collected (with others appended), *L. serpyllifolia* occurs only twice, and we believe it is by far the scarcer of the two. All the numerous forms collected in the county Wicklow are referable to the sub-species *albida* Spruce = *L. Moorei* Lindberg, which we have gathered almost green, yellow, and approaching to white.

The Co. Kerry plants are nearer the type, and specimens which I collected at the Hunting Tower, Killarney, approach the South American plants closely.

The many curious forms of *L. flava* which are to be found, place those studying *Lejeunea* in considerable difficulty in defining which is *flava* and which is *serpyllifolia*. That *L. patens* Lindberg, is a form of the latter there can be no doubt; it is well figured in Dr. Moore's 'Irish Hepaticæ,' t. 43. I therefore trust I may be permitted to quote, for the benefit of those who may have any difficulty in defining them, the distinctions given in Dr. Spruce's grand work[*] 'Hepaticæ Amazonicæ et Andinæ,' p. 271:—

"A few easily-observed characters usually suffice to distinguish every form of *L. serpyllifolia* Dicks. from *L. flava* Sw. (1) The size is smaller and the colour more rarely yellowish; (2) the leaves rounder, and with a much longer and more turgid lobule, sometimes equalling half the leaf; (3) the cells larger, $\frac{1}{30}$ mm. in diameter against $\frac{1}{45}$–$\frac{1}{40}$ mm. in *L. flava;* (4) the under leaves variable in size, generally smaller than in *L. flava*, always cloven quite to the middle, and with the segments oftener acute (although in some forms obtuse); (5) the perianths rather shorter, acutely 5-carinate (whereas in every form of *L. flava* the keels are very slightly raised and obtuse)."

The following are the localities for the plant known to me:—

*Eu-Lejeunea flava* Swz. (approaching the type).

Hab. Killarney. *J. T. Mackay.* Specimens in Hookerian Herbarium. Cromaglown, *Dr. Moore*, 1862. Near the Hunting Tower, Cromaglown, *D. McA.*, 1878. From the drawing of the perianth of Plate 2537, in 'English Botany,' this is evidently the plant which was collected and not *serpyllifolia.*

— Sub-species *albida* Spruce = *L. Moorei* Lindberg, Act. Soc. Fenn. x. p. 487. Moore on Irish *Hepaticæ*, p. 615, Plate 44 (good).

Hab. Co. Kerry: Cromaglown, Killarney, *Dr. Moore*, 1862—1875; O'Sullivan's Cascade, Killarney, *Dr. Moore* and *Dr. Lindberg*, 1873; Cromaglown, *D. McA.*, 1878. Co. Galway: in the wood near the Castle, Kylemore, *Dr. Moore* 1873. Co. Wicklow: Altadore Glen, 1887—8; Glencullen, 1877; Dargle River, 1889. In the last three stations it is abundant, and will doubtless be found in most of the moist shaded glens through the country.

*L. serpyllifolia* Libert. Glencullen, 1887. Dargle River, 1889, sparingly.

*Homalo-Lejeunea Mackaii* Hook. F. Engl. Bot. t. 2573; Hook. Brit. Jung. t. 53. *Phragmicoma Mackaii* Dumort. Comm. Bot. p. 112; Lindberg Hepat. Scand. Exsic. fasc. i. This is the only British species representing the section,—four others belong to Mexico and Brazil,—and is rather a scarce plant in Ireland. Frequent at Killarney, *Dr. Moore;* on limestone rocks on the margin of a small lake near Letterfrack, Co. Galway, *Dr. Moore* and *D. McA.*, 1874. Reported also from Woodlands, near Dublin, and from Cork. Not included in the *Hepaticæ* of the Flora of the N.E. of Ireland. Plentiful on the faces of the moist rocks on the Dargle River, Co. Wicklow, *D. McA.* and *R. W. S.*, 1889. This is a new locality; probably the plant is more widely distributed and may be inadvertently passed over for *Radula complanata.* It may be readily distinguished in the field by the large obcordate undivided under-leaves (stipules), which are wider than the stem.

*Conocephalus conicus* Neck. Dumort. *Marchantia conica* Eng. Bot. t. 501. Abundant in fruit by the margin of the Dargle River, 1889.

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[*] Transactions and Proceedings of the Bot. Soc., Edinburgh, Vol. XV. pt. I.

*Frullania dilatata* Linn. Dumort.; Hook. Brit. Jung. t. 3. Dargle River, 1889.

*Radula complanata* Linn. Dumort.; Hook. Brit. Jung. t. 81. Dargle River, 1889.

*Cephalozia bicuspidata* Linn. Dumort.; Hook. Brit. Jung. t. 11. Glencullen, 1887. Dargle River, 1889.

*Lophocolea bidentata* Linn. Glencullen, 1887.

*L. heterophylla* (Schrad.) Dumort.; Hook. Brit. Jung. t. 31. Plentiful at Glencullen and other parts of the Co. Wicklow. A rather scarce plant in Ireland, and seldom seen in fruit, which has led to its being imperfectly understood, and is doubtless lurking in the herbariums of many collectors under the name of *L. bidentata*. The only localities previously recorded for it that I am aware of were Tore Mountain, Killarney, *Dr. Carrington* (rare); near Cong, Co. Galway, *Dr. Moore;* near Fermoy, Co. Cork, *Isaac Carroll.* Mr. Slater states that it is perhaps the very commonest liverwort in the Yorkshire district and fruits abundantly, and is to be regarded as a good species. It has parœcious inflorescence; the antheridia may be found in the axils of the leaves just beneath the perianth. By this character it is separated distinctly from *L. bidentata* and *cuspidata*, which both have their male flowers in spikes (or amentiform).

*Kantia trichomanes* Dicks. Glencullen, 1887.

*Diplophyllum albicans* Dumort. Dargle River, 1889. A very large form.

*Plagiochila asplenoides* Linn. Eng. Bot. t. 1061; Hook. Brit. Jung. t. 13. Dargle River, 1889. Abundant.

*Jungermannia* (*Aplozia*) *crenulata* Smith. Glencullen, 1887.

*J. sphærocarpa* Hook.; Hook. Brit. Jung. t. 74. Dargle River, 1889. (Reported from Loughbray).

*J.* (*Gymnocolea*) *affinis* (Wilson) Dumort.; Hook. Brit. Jung. p. 10, fig. 71. *J. turbinata* Wils. in Eng. Bot. Suppl. t. 2744. Dargle River, 1889. Not previously reported from the Co. Wicklow.

*Nardia hyalina* (Lyell) Carrington; Hook. Brit. Jung. tab. 63. Glencullen, 1887. Reported from Seven Churches, in same county.

*Pellia calycina* (Nees) Taylor; Hook. Brit. Jung. t. 47; Eng. Bot. Suppl. t. 2875. Dargle River, 1889. Abundant.

*Metzgeria furcata* (Linn.) Dumort. Glencullen, 1887. Dargle River, 1889. Abundant.

*Riccardia multifida* (Dill., Linn.); Hook. Brit. Jung. t. 45. Glencullen, 1887.

*R. multifida* var. *β. sinuata* Hook. Brit. Jung. t. 45, in part. *Aneura sinuata* Dumort. Hepat. Europæa, p. 142. Glencullen, 1887. Plentiful.

# ON A NEW SPECIES OF *POLYPODIUM* FROM JAMAICA.

By J. G. Baker, F.R.S.

This new species closely resembles in habit the widely-spread south temperate *Polypodium australe* Mett., from which it differs by its globose sori, and short pilose less coriaceous fronds. We have received it twice during the last year from Mr. Wm. Fawcett, F.L.S., the Director of Public Gardens and Plantations. His specimens were collected by Mr. Moore, below Morse's Gap. We also received it in 1875 from Mr. G. S. Jenman, F.L.S., who labels it, "from the highest mountains, rare." Its place in the series is next to 97, *P. jungermannioides* Klotzsch.

**Polypodium** (Eupolypodium) **Fawcettii**, n. sp. — Caudex erect. Stipes densely tufted, very short, slender, castaneous, densely beset with spreading subulate brown paleæ. Fronds lorate, 1–2 in. long, ⅛ in. broad, green, moderately firm in texture, obtuse, entire, narrowed gradually to the base, thinly clothed on both surfaces with short brown hairs. Veins erecto-patent, each with a short anterior branch low down, bearing the sorus on its tip. Sori crowded, globose, superficial, filling up nearly the whole space between midrib and margin, absent from the lower third of the frond.

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## SHORT NOTES.

Hybrid Thistles near Plymouth.—In July of this present year I found, in a field on Leigham Estate, Egg Buckland, about half a score of thistles, growing with *Carduus nutans* L. and *C. crispus* L., and, by their features, evidently hybrids between them. They were curiously connective of the two species. Three or four much resembled the plate dclxxxv. of Eng. Bot. ed. 3, representing *C. nutanti-crispus;* others had more of the characters of *C. nutans*, being of stouter habit, with larger anthodes, and longer spines to the stems and leaves. The field in which they grew might have been called a "thistlery," for *Cnicus lanceolatus* Hoffm., *C. palustris* Hoffm., and *C. arvensis* Hoffm. occurred there with those already mentioned. The field is situated in Dist. IV. (Plym) of 'Flora of Plymouth,' and over a couple of miles from the spot therein mentioned as having produced in 1871 another set of what were very similar plants. I have no doubt these had a like hybrid origin. I find in the Bot. Exchange Club Report for 1888, just received, mention of a supposed hybrid between *C. nutans* and *C. crispus* sent from a "Hedge, Sellack, Herefordshire, Sept. 1888," by the Rev. Augustin Ley. It is commented on as very near *crispus*, and the comparatively late date when it was collected must make the specimen or specimens more or less unsatisfactory; for specimens of thistles, as well as of burdocks, collected in the autumn are almost certain to be shoots that have sprouted from roots which have had the ordinary stems of the year cut away or destroyed; and these autumnal second stems often appear with more or less abnormal and deceptive features.—T. R. Archer Briggs.

Rubus rhenanus Müll. ?—The note I contributed respecting this bramble for the Botanical Exchange Club Report for 1888 has been therein inserted as if applicable to the Monmouth plant, called by Focke, *Rubus Lœhri*. I write this note to say it was written with reference exclusively to the one of the neighbourhood of Plymouth, which plant is different from any that I have as yet seen from other parts of the kingdom. Sent by me from Crabtree, one of its Plymouth stations, to the late Rev. Andrew Bloxam, it was by him considered, we now know erroneously, to be *R. Bloxamii* Lees, and was under that name inserted by me in 'Flora of Plymouth,' though as "not typical *Bloxamii*." I am glad to know it has since been described by Babington, and that it now appears under another name.—T. R. Archer Briggs.

Melampyrum sylvaticum in Gloucestershire (p. 152). — The locality given for this plant, at Wych Cliffs, Gloucestershire, in Turner and Dillwyn's 'Botanist's Guide,' rests on the authority of Swayne. I have repeatedly searched the woods in the neighbourhood for many years past without observing this interesting species, and, finding no specimen in the herbarium of Withering or Smith at the Linnean Society, cannot but fear that Swayne might have mistaken small examples of *M. pratense* for it. Sale likewise makes no reference to finding *Melampyrum sylvaticum* L. at Wych, in his 'Midland Flora,' where he was constantly in the habit of collecting plants.—T. Bruges Flower.

Lophocolea spicata Tayl. in North Wales. — This rare species, which, so far as I know, had only been recorded from Ireland,—Cromaglown, Dunkerron, *Dr. Taylor;* near Bantry, *Miss Hutchins;* on rocks below Torc Cascade, *Dr. Carrington;* Glensiskin, *I. Carroll* (Carrington, 'Gleanings among Irish Cryptogams,' 1863),—was found by the late Mr. William Curnow in 1884, at St. Just, Cornwall (Trans. Penzance Nat. Hist. & Antiq. Soc. 1883–4). Some years ago, my friend Mr. George Stabler, of Levens, mentioned that he had specimens collected in 1843–4 by Wilson, near Conway, North Wales. He is said to have been very chary in communicating stations for the rarer plants. In 1886 I spent some time searching for this species, but unsuccessfully; this year, however, I have been able to find it at Trefriw, about ten miles from Conway, no doubt the original station, as it was growing with the rare *Radula voluta* Tayl., which species Wilson had also collected in that neighbourhood. This re-discovery confirms a station not previously published. —W. H. Pearson.

New Bucks Plants. — During the present summer *Arnoseris pusilla* has been growing plentifully in a sandy corn-field in the parish of Great Brickhill, Bucks. It was shown to me on July 29th by Mrs. E. Tindall, of Leighton Buzzard, who had previously observed it in the same station. This is interesting, not only as a new county record, but also for the Watsonian province W. Thames, No. 9, which includes Berks, Oxford, and Bucks. On reference to Watson's 'Topographical Botany,' ed. 2, it would appear that this plant is still unrecorded for Hunts, which is apparently the only county in the S.E. of England in which it has not been observed. For Herts it is recorded in Mr. Pryor's 'Flora' of that county, with the observation that it had been very rare lately. *Nephrodium Thelypteris* Desv. was also shown me by Mrs. Tindall in July last, growing in a boggy wood just within the borders of Bucks, where it joins the county of Beds, near Great Brickhill. It was growing in company with *Chrysosplenium oppositifolium*, which is a very local plant in this district. *N. Thelypteris* is also a new county record. —J. Saunders.

Falcaria Rivini in Kent. — This plant is still to be found in its old habitat, which it has retained for the last thirty years, so I think it deserves to be noted as pretty well established in Kent. I have in my herbarium a specimen gathered in the same place in the year 1858; not being able at that time to make it out, I sent a specimen to Dr. Lindley, but he refused to name an umbelliferous plant without perfect fruit-seed. I therefore watched for the seed to ripen, but it all died off without coming to perfection. The year I first found it, it was growing in an arable field planted with potatoes, which I learned were brought from Scotland. The farmers in this neighbourhood use a spuddleing plough in their fields soon after carrying the corn, and the plant was cut up, and I thought destroyed, till I found it again in the same field in the autumn of 1887, when the field was sown with peas; it probably meantime escaped observation, as it would not readily be detected in the standing corn, coming up, as it does, late. For better observation I planted some roots of it in my garden in 1887; it blossomed last year, and is now again in full bloom. It does not appear to have increased by seedlings, but it produces long fibrous roots, which strike deep into the ground; however, it is now very vigorous, and came up early, and seems likely to perfect seed. The Rev. A. L. Moore found the plant at Birchington in 1886 (Journ. Bot. 1887, p. 183). *Lepidium Draba*, which I remember to have been introduced into this parish some thirty-five years ago, has greatly increased, not only here, but in all the eastern parts of Kent, and is now one of the most troublesome of weeds; the *Falcaria* does not seem so prolific, perhaps from its not often ripening its seed, and the field in which I first found it is the only place where it grows in this neighbourhood, except in my garden. The spot where it grows is in the neighbouring parish of Preston-next-Wingham, in an arable field near the junction of the two parishes, to the east of the footpath between them.—Geo. Dowker.

Festuca heterophylla (pp. 216, 249). — It may be noted that this plant was sent to the Botanical Record Club by Mr. Brotherston in 1874. His note on the specimen (now in Herb. Mus. Brit.) runs:—"Road-sides near Kelso, Roxburghshire, June, 1874. Most likely introduced with grass-seeds, as I have seen it named in seed-lists."—James Britten.

Poa palustris L. in Britain.—Ranging from South Lapland and Finland to North Italy and South Russia, *Poa palustris* L. is a species which might well be expected to occur in Britain, and possibly, now that it has been detected in one place, may have a wider distribution than is at present supposed. To my friend Mr. William Barclay belongs the credit of discovering it in Perthshire. Mr. Barclay has been lately engaged in investigating the flora of some of the marshes which fringe the River Tay below Perth, and at the end of July found a grass which he did not recognise as a familiar species. On examination we could not make anything of it except *Poa palustris*, a determination confirmed by Dr. Hackel. *P. palustris* bears some resemblance to *P. pratensis*, *P. trivialis*, and *P. nemoralis*. From *P. pratensis* the absence of creeping stolons and the long ligule readily distinguishes it; from *P. trivialis* the much less conspicuously veined lower pale; and from *P. nemoralis* (of which it has been called a variety) the conspicuous ligule. According to Nyman, *P. serotina* Ehrh., *P. fertilis* Host., and *P. angustifolia* Whlnb. are synonyms of *P. palustris* L. In its Perthshire locality *P. palustris* grows in association with *Carex aquatilis*, and is undoubtedly indigenous. The Watsonian vice-county is 88, Mid-Perth.—F. Buchanan White.

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# BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.

By James Britten, F.L.S., and G. S. Boulger, F.L.S.

(Continued from p. 249.)

**Leichardt, Friedrich Wilhelm Ludwig** (d. 1848). Lost in Australia, 1848. Letters in Journ. Bot. 1845–1848. Fl. Tasman. cxxi. *Leichardtia* Br.

**Leigh, Charles** (1660–c. 1704): b. Grange, Lanc., 1660; d. after 1704. B.A., Oxon. M.D., Camb. F.R.S., 1685. 'Nat. History of Lancashire, Cheshire, and the Peak,' 1700. Pult. i. 353; Pritz. ed. 1, 153; Jacks. 250. *Leighia* Scop. = *Ethulia*. *Leighia* Cass.

**Leighton, Rev. William Allport** (1805–1889): b. Shrewsbury, 7th May, 1805; d. Luciefelde, Shrewsbury, 25th Feb. 1889. B.A., Camb., 1833. F.L.S., 1865. 'Catal. of Cellulares,' 1837. Contributed to Phytol. 1841. 'Flora of Shropshire,' 1841. 'British Angiocarpous Lichens,' 1851. 'Lichen-Flora,' 1871. Pritz. 181; Jacks. 571; R. S. C. iii. 943; viii. 197; Journ. Bot. 1889, 111; Trans. Shrops. Archæol. Soc. ix. (1886), with photo. portr. Portr. at Kew. *Leightonia* Trevisan.

**Lelamar, John** (fl. 1733). Master of Hereford School. Translated Macer's Herbal, Sloane MS. 1571. Pult. i. 32; Haller, i. 215.

**Lete, Nicholas** (fl. 1597). London merchant. Imported plants from Aleppo. Gerard.

**Lettsom, John Coakley** (1744–1815): b. Little Van Dyke, Tortola, 22nd Nov. 1744; d. Sambrook Court, Basinghall Street, 1st Nov. 1815; bur. Little Coleman Street, Bunhill Row. M.D., Leyden, 1769. LL.D., Camb. Mass., &c. L.R.C.P., 1770. F.R.S., 1771. F.L.S., 1797. Had a bot. garden at Grove Hill, Camberwell. 'Natural History of the Tea-tree,' 1772. 'Naturalist's Companion,' 1772. 'Hortus Uptonensis,' 1783. Pritz. 183; Jacks. 572; 'Life,' with portr., W. Skelton pinx. & sculpsit, 1817; Munk, ii. 287; Nichols, Lit. Illustr. ii. 657, with portr.; 'Memoirs of S. Fothergill,' by G. Crosfield; Cott. Gard. v. 79. Portr. engr. T. Holloway. *Lettsomia* Ruiz. & Pav.

**Lewis, Rev. Dr.** (fl. 1700). Of Madras. Sent Cape plants to Petiver, Mus. Pet. nn. 261, 784.

**Leyland, R.** (fl. 1835). Of Halifax. Contributed to N. B. G., 659, &c. Pl. in Herb. Mus. Brit.

**Lightfoot, Rev. John** (1735–1788): b. Newent, Gloucestersh., 1735; d. Uxbridge, Middlesex, 20th Feb. 1788. M.A., Oxon, 1766. F.R.S. F.L.S., 1788. Chaplain to Dowager Duchess of Portland. Rector of Malden, Hants, 1765; of Gotham, Notts, 1777, then of Cowley, Middlesex. Travelled through Scotland, with Pennant, 1772. 'Flora Scotica,' 1777; ed. 2, 1789. Herbarium bought by George III., now at Kew; partly in that of G. S. Gibson, Saffron Walden. Rees; Pritz. 185; Jacks. 246; MS. 'Journal of a Botanical Excursion in Wales,' in Dept. Bot., Brit. Mus.; Life in 'Flora Scotica'; Gent. Mag. xlvii. (1777), 296; lviii. pt. 1 (1788), 183, 269. *Lightfootia* L'Her.

**Lind, James** (fl. 1753–1808). M.D., Edinb. Plants from Cape, St. Helena, Johanna I., and E. Indies in Herb. Brit. Mus. With Banks in Iceland, 1772. Banks. Corresp.

**Lindley, John** (1799–1865): b. Catton, Norfolk, 5th Feb. 1799; d. Turnham Green, Middlesex, 1st Nov. 1865; bur. Acton. Ph.D., Munich, 1832. F.L.S., 1820. F.R.S., 1828. Assistant in Banks' Library, 1819. Garden clerk, Chiswick, 1822. Assistant-Sec. Hort. Soc., 1830; Sec., 1858. Prof. Bot. Univ. Coll., London, 1829–1860. Præfectus Hort., Chelsea, 1836–1853. Editor, 'Bot. Register,' 1826; 'Gard. Chron.,' 1841. 'Monographia Rosarum,' 1820. 'Monog. Digitalium,' 1821. Loudon's Encycl. of Pl. 1822–1829. 'Synopsis of Brit. Flora,' 1829. 'Fossil Flora,' with Hutton, 1831–1837. 'Ladies' Botany,' 1834. 'Vegetable Kingdom,' 1845. Herbarium at Cambridge; Orchids at Kew. Pritz. 186; Jacks. 573; Proc. Linn. Soc. 1865–6, lxxiii.; Proc. Roy. Soc. xv. xxx.; R. S. C. iv. 31; Lasègue; Gard. Chron. 1865, 1058, 1082; Journ. Hort. ix. (1865), 381. Portr. in Ipswich Museum series. Copy at Linn. Soc. and at Kew. Portr. Men of Eminence, 1866. *Lindleya* H. B. K.

**Lindsay, A. K.** (fl. 1833). M.D. Collected in Kumaon. R. S. C. iv. 34; Bot. Misc. iii. 119.

**Lindsay, Archibald** (fl. 1781). M.D., Edinb., 1781. 'Diss. inaug. de pl. incrementi causis,' 1781. Pritz. 186.

**Lindsay, John** (fl. 1790). Of Jamaica. Surgeon. 'On Germination of Ferns,' Linn. Trans. ii. 313. 'Account of *Quassia polygama* . . . and of *Cinchona brachycarpa*,' Trans. R.S.E. 1791.; R. S. C. iv. 34. Specimens in Herb. Mus. Brit. *Lindsæa* Dryand.

**Lindsay, William Lauder** (1828 or 1829–1880): b. 1828 or 1829; d. Nov. 1880. M.D., Edinb. F.R.S.E. F.L.S., 1858. 'Pop. Hist. Brit. Lichens,' 1856. 'Contributions to New Zealand Bot.,' 1868. Pritz. 187; Jacks. 573; R. S. C. iv. 34; viii. 234; Proc. Linn. Soc. 1880–82, xviii. Gard. Chron. 1880, ii. 734; Journ. Bot. 1881, 64.

(To be continued.)

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## *REPORT OF THE DEPARTMENT OF BOTANY, BRITISH MUSEUM, FOR* 1888.

By William Carruthers, F.R.S.

During the past year 49,879 specimens of plants have been mounted, named, and inserted in their places in the Herbarium; of these, 15,679 were Phanerogams, and 34,200 were Cryptogams.

These additions have consisted chiefly of specimens collected in Europe by Auerswald and Heldreich; in India by King, Clarke, Beddome, and Ferguson; in Perak by Scortechini; in China by Hance; in Japan by Bisset; in Egypt by Schweinfurth; in Tropical Africa by the Rev. W. E. Taylor; in South Africa by MacOwan, Scully, and Scott Elliot; in Canada by Macoun; in the United States by Bartram, Lemmon, and Marcus Jones; in Mexico by Palmer; in the Bermudas by Baron Eggers; in British Guiana by Im Thurn; and in Brazil by Miers, Ridley, Lea and Ramage.

The great collection of Mosses formed by Hampe has been completely mounted and arranged in the cabinets.

In the course of incorporating these additions, the following Natural Orders have been more or less completely re-arranged:—*Ranunculaceæ*, *Papaveraceæ*, *Cruciferæ*, *Violaceæ*, *Caryophyllaceæ*, *Malvaceæ*, *Rosaceæ*, *Loranthaceæ*, *Compositæ*, *Campanulaceæ*, *Apocyneæ*, *Gentianaceæ*, *Bignoniaceæ*, *Loganiaceæ*, *Laurineæ*, *Cupuliferæ*, *Euphorbiaceæ*, *Gramineæ*, *Filices*, and *Lycopodiaceæ*.

The series of Monocotyledonous plants in the public gallery has been partly re-arranged, and progress has been made in selecting and labelling specimens for the Morphological Exhibition in the great hall.

A collection of British plants have been selected for public exhibition, specially for the use of students. The Dicotyledons have been systematically arranged in moveable frames attached to two standards, and the descriptions from Mr. Bentham's 'Handbook of the British Flora' have been attached as labels to each species. The frames of a third standard will complete the Vascular plants, and those of a fourth will contain a typical representation of the Cellular plants of Britain.

The models of Fungi prepared by the elder Sowerby in connection with his 'British Fungology' have been completely restored and repainted by Mr. W. G. Smith, F.L.S., and remounted with greater regard to the conditions under which they occur in Nature.

The additions to the collections during the past year by presentation have consisted of 161 species of plants from Cyrene from M. Barbey; 910 species from India from C. Baron Clarke, Esq.; 447 species from India from Dr. King; 819 species, collected chiefly in the islands of the Eastern Archipelago by Lobb, presented by H. Veitch, Esq.; 27 specimens of Dipterocarps, presented by Mr. C. Curtis, of the Forest Department of the Straits Settlements at Penang; 300 species of South African plants from Prof. MacOwan; 530 species from Africa and Syria from Dr. Schweinfurth; 145 species from St. Thomas, West Tropical Africa, from Prof. Henriquez, of Coimbra; 29 species from the Niger from Sir J. Marshall; 172 species from Canada from Prof. Macoun; 2 species of American *Coniferæ* from Prof. Sargent; 3 rare American plants from Dr. N. L. Britton; 305 species of plants, 25 specimens of fruits, and 74 specimens of woods, collected in the Bermudas by Baron Eggers, and presented by the Joint Committee of the Royal Society and the British Association for investigating the Natural History of West India Islands; a collection of fruits and seeds from Jamaica from William Fawcett, Esq.; 20 specimens of fruits and seeds from the island of Fernando do Noronha from Major Mendouça; 31 specimens of *Orchideæ* from Mr. F. Moore, of Glasnevin; 4 species of *Orchideæ* from Mr. J. O'Brien; 6 species of *Orchideæ* from Mr. H. Veitch; specimens of *Strophanthus* from Mr. T. Christy; specimen of *Trapella sinensis* from Mr. S. W. Oliver; specimen of *Pinus muricata* from Mr. J. Ion; a *Habenaria* from Madagascar from the Rev. R. Baron; 6 species of Cryptogams from Mr. G. Davies; 23 species of Cryptogams from Mr. A. Bennett; 17 species of Moss from Holne, East Suffolk, collected and presented by Mr. Clement Reid; 34 species of Cryptogams from Mrs. Blicker; 23 specimens of Mosses from Borneo, collected and presented by Mr. A. H. Everett; a new British Moss from Mr. J. R. Vaizey; 50 species of *Hepaticæ*, collected in New South Wales by Mr. Thomas Whitelegge, and presented by Dr. Carrington and Mr. W. H. Pearson; specimens of rare and critical *Algæ* from Cramer, Beccari, and Grunow; 243 species of *Fungi* from W. W. Strickland, Esq.; 11 preparations of minute *Fungi* from Mr. George Brebner; 12 preparations of *Fungi* from Dr. D. D. Cunningham; 34 species of *Uredineæ* from C. P. Plowright, Esq.; and specimens of different plants from Messrs. G. F. Sherwood, Scott Elliot, W. Phillips, W. G. Smith, C. P. Smith, and Mrs. Dickson.

By exchange a collection of 122 species of *Algæ* from Barclay Sound, Vancouver Island, was obtained from Prof. Macoun.

The following collections have been acquired by purchase:—100 species of European plants from Dr. Schultz; 100 species of plants from Sicily, collected by Lojacono; 100 species of plants from Greece, collected by Prof. Heldreich; 240 species of plants from Poland, collected by Blocki; 415 species from Northern Syria, collected by Prof. Post; 1000 specimens from the East Indian

Islands; 20 species from New Guinea, collected by H. O. Forbes; 670 species from Eastern Tropical Africa, collected by the Rev. W. E. Taylor; a collection from Lake Nyassa, formed by Buchanan; 124 species from Madagascar, collected by the Rev. R. Baron; 450 species from California, collected by Dr. Palmer; 172 species from Brazil, collected by Ramage; 794 South American plants, collected by Dr. Rusby; 300 species of North American *Algæ* from Dr. Farlow; 100 species of European *Algæ*, collected by Mougeot; 60 species of European *Algæ* from Hauck and Richter; 69 preparations of *Algæ* by Buffler; 144 specimens of *Diatomaceæ*, prepared by Norman; 650 species of *Diatomaceæ*, named and prepared by Prof. H. L. Smith; a large block of Diatomaceous earth from Victoria; and 650 species of *Fungi* by Sydow.

The systematic arrangement of the collection of prints and drawings of plants has made considerable progress during the year, and many additions have been made to it; 119 drawings of Indian plants were obtained by exchange from the Director of Kew Gardens; 28 original drawings of *Fungi* and 3 of British Orchids, by W. G. Smith, have been acquired. Mr. George Massee has presented 16 drawings of *Fungi* by himself; 27 drawings of Brazil plants, and 7 drawings of New Guinea Orchids, have been purchased.

The whole of the scientific correspondence of C. E. Broome and W. Wilson, acquired with their respective collections, and amounting to 8500 different items, has been arranged and mounted in guard-books for preservation and easy reference.

The British Herbarium has been increased by the presentation of 210 Leicestershire plants by the Rev. T. A. Preston; 85 specimens of Surrey *Rubi* by Mr. J. G. Baker; 68 species of plants by the Rev. E. Marshall; 64 species of plants by Mr. A. Bennett; and several new or critical plants by Messrs. W. H. Beeby, J. Cotton, R. F. Towndrow, and G. Nicholson, Miss E. K. Pearce, Miss F. P. Thompson, and Dr. F. B. White.

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## *NOTICES OF BOOKS.*

*A Handbook of Cryptogamic Botany.* By Alfred W. Bennett, M.A., B. Sc., F.L.S., and George Murray, F.L.S. London: Longmans. 8vo, pp. viii. 473. Price 16*s*.

There is probably no department of Biology which has increased with more rapidity during the past half-century than that of Cryptogamic Botany; whether we consider the number of new organisms added to those previously known, or the novelty and magnitude of the discoveries made with regard to the physiology, life-history, and genetic relations of these organisms. Yet it is thirty-two years since there has been any work published undertaking to be for the student a general guide to the sum of ascertained knowledge in this branch of science.

Admirable as was the Rev. M. J. Berkeley's 'Introduction to Cryptogamic Botany' (1857) for the time in which it was written, yet the venerable author, so lately taken from us, would doubtless have been one of the first to acknowledge that a work bringing the history of the subject down to date has been for several years the most distinct desideratum of the British cryptogamist. There could be no doubt whatever about the importance of the adequacy, or otherwise, of the treatise which should appear as a successor to 'Berkeley.' The book which is the subject of the present review has, as is known to the initiated, been "threatened" for a considerable time, and the names of the distinguished botanists who are joint authors have caused its appearance to be anticipated with unusual interest. Those who were familiar with their previous publications must have known that ample knowledge and unwearied research would not be wanting in any production of the two writers who have for a considerable time been co-partners in this particular domain of Science. However, knowledge full even to overflowing does not always carry with it the power of imparting information; and it would have been quite possible for the work under consideration to have been dull or repellent, confused or disproportioned, even though crammed with erudition, and teeming with records of the latest discoveries.

It is with the greatest pleasure that one finds the 'Handbook' as excellent in its arrangement and style, in its selection of material and consideration of the actual needs of the student, as it is rich in the results of scientific scholarship. It is not only distinctly superior to any work in the English language purporting to give a general account of the Botany of the Cryptogamia, but it contains information, which will be necessary to any botanist who takes up the separate study of Ferns, Mosses, Algæ, or Fungi, and which he will find it impossible to obtain elsewhere in so accurate or compact a form. The merits of lucid statement and unambiguous language are not so common or so unimportant as some would suppose. The great German works which form the staple pabulum of most working botanists at the present day, even when they have issued from the Clarendon Press, "done into English by several hands" (and generally after a lapse of several years occupied in the process), can hardly be considered literature. In fact, their pages, bristling with uncouth and unnecessary sesquipedalian terminology, are often absolute torture to those who do not want "something craggy" to break their minds against.

It is, perhaps, not given to our rough insular tongue to emulate the exquisite transparency of style, the delightfully simple vocabulary, the artistic directness which seizes the exact point of importance, and puts it boldly in relief unencumbered by a crowd of details, the scientific clearness which knows exactly what to say and then says it in words which seem to be the only ones possible for the purpose; all those qualities, in short, which make Van Tieghem's 'Traité de Botanique' the queen among botanical text-books; but in the present work we have proof that we can at any rate have in English clear arrangement, a due sense of proportion, accurate scientific expression of facts without it being thought necessary to clothe them in cumbrous newly-invented phraseology, and, in addition, a perfectly readable style which conveys with ease to the reader the impression which was in the mind of the writer.

There is another matter, besides style, in which the present work contrasts very favourably with the productions of the German school. In reading Sachs' 'Lectures,' the last, and in some ways the best of the treatises referred to, it is impossible to restrain a growing sense of irritation at the constant reiteration of self-congratulatory references to the author's previous publications, occasionally coupled with peevish expressions of disgust at the fatuity even of brother-Teutons (French and English work is of course systematically ignored) who have presumed to suppose that they might with impunity differ from the "Great Cham" of Botany. Messrs. Murray and Bennett err on the opposite side, if at all. Although they have written on the subject with which they now deal for many years, and in several quarters, they make hardly the slightest reference in the 'Handbook' to their previous labours. Murray's 3rd edition of the cryptogamic portion of Henfrey's 'Botany,' Bennett's 4th edition of the same, Murray's articles on Fungi, &c., in the 'Encyclopædia Britannica,' papers by the joint authors read before the British Association and the Linnean Society, articles in the 'Journal of Botany' and the 'Academy,'—in these and many other quarters may be found the earliest statements of views which are put forward in the present volume; and it would have been useful, with regard to questions of priority in nomenclature and terminology, if on some occasions they had been freer in the acknowledgment of the debts they owed to—themselves. However, if they are comparatively silent as to their own previous writings, they do full justice to those of others. They claim to have made the attempt to acquaint themselves with the contents of every important publication of recent years bearing on Cryptogamic Botany, and issued in English, French, German, Italian, or Latin. Nor are they satisfied with this general acknowledgment; a well-selected and valuable bibliography of the British and foreign literature of the subject is attached to each division, while every important order has a minor bibliography of its own, the completeness and accuracy of these catalogues of cryptogamic literature forming a very valuable feature of the work, while in the text the discoveries and theories of recent observers are accredited to the proper source with praiseworthy fidelity.

It would be difficult, one might suppose, when such a large number of facts and names had to be compressed into a comparatively limited space, to prevent the pages from becoming as dry and uninviting as those of the 'Nautical Almanack.' But this danger has been guarded against by various devices, one of the most important of which is that of a reformed and comparatively simple system of terminology. Most botanists who have dealt with the Cryptogams will re-echo the statement that "the question of terminology is one of the greatest stumbling-blocks to the student of cryptogamy." Not only are new terms being constantly introduced, many of them quite needlessly, or from an erroneous idea of structure, but some that are in continual every-day use are employed in different senses by different writers of repute. The fact is, we are groaning under a terrible bondage in this matter, and it will be welcome news that deliverance is at hand. The list of terms is continually increasing; every new writer seems to think he is bound to add to it, even if he only provides synonyms for words that have already a recognised meaning, or confers the very doubtful benefit on his readers of compressing a short, simple sentence into a long, unwieldy word. Messrs. Bennett and Murray rightly lay great stress on the necessity of taking some steps to reduce the present chaotic and inconsistent mass of terms to something like order and simplicity. To a great extent they are successful, but in some instances there will be grave doubts whether the means they have taken for rendering their terminology more accurate and simple are really the best for the purpose. They have, whenever possible, used anglicised instead of Latin or Greek forms. To this it may be objected that the classical forms are of cosmopolitan range, being equally applicable in all languages, whereas the introduction of a special set of terms for each modern language would greatly multiply the present vocabulary, instead of relieving the existing plethora. The authors look forward with confidence to seeing "all or nearly all of the anglicised terms they have used gradually introduced into all English works on Cryptogamic Botany"; but too-sanguine expectations on this head might well be toned down by remembering the complete failure of the somewhat similar experiments made by Lindley, although that distinguished botanist, with a like over-high estimate of the wisdom of his fellow-creatures, "confidently believed that every intelligent reader" would find his new anglicised names preferable to the Latin ones for which he sought to substitute them. Primworts, Spurgeworts, Beancapers, and Hippurids are decidedly simpler, even if less euphonious, than *Primulaceæ*, *Euphorbiaceæ*, *Zygophyllaceæ*, and *Haloragaceæ*, yet the longer Latin terms are still universally used, while the quasi-English ones have never obtained even temporary acceptance; and Bentham's Butomes, Corydals, and Capsells have experienced no kinder fate.

It is worth while to remark in this connection that the specimens of the new terminology given on p. 5, "sporange, archegone, antherid, sclerote, epiderm," are extremely similar to those used by Van Tieghem, *viz.:* Sporange, Archégone, Anthéridie, Sclérote, Épiderme. The anglicised terms are, probably without any conscious imitation, remarkably close to the gallicised form derived from the same Greek or Latin originals.

The rescuing of the word "spore" from the inconvenient extension given to it by Vines, and the restricting its use to denote a separable cell which without sexual union is capable of direct propagation, follows from the sound principle of basing a system of terminology on facts which can be confirmed by actual observation rather than on unproved hypotheses, and is distinctly a step in the right direction of order and clearness. So also, in a minor matter, the use of "megaspore" instead of macrospore is clearly an advantage, both because it is more correct from an etymological point of view and because it is less likely to be confused with "microspore," a mistake often made, as teachers in botany could testify.

But it is necessary to make a strong protest against another change, evidently of considerable importance in the eyes of the authors, *viz.*, the utter rejection of "spermatozoid" from botanical terminology, and the assigning the syllable "sperm" not to the male factor in impregnation, but to the fertilised female element. The adoption of this suggestion would be a distinctly retrograde step, and would do much to retard that uniformity of terminology in both branches of Biology which is so greatly to be desired. It is suggestive that in the recent edition (1888) of 'Huxley's Biology,' by Howes and Scott, the exactly opposite change is made throughout the botanical portion, "antherozoid" of the early edition being in every case replaced by "spermatozoid."* By this change the analogy of the reproductive process in the plant and animal divisions of Biology is at once made considerably clearer, as "spermatozoa" is the almost universally used term in Zoology for the male element in reproduction.† Sachs ('Lectures on the Physiology of Plants,' Eng. Tr., p. 724) advocates the exactly opposite course to that pursued by Messrs. Murray and Bennett. He says:—"It would be the simplest and most accurate plan to denote all male organs spermogonia, and all female organs oogonia." The use of spermatozoid—zoon, sperm-cell, or some other compound of sperm, for the male element, is frequent in English text-books of Botany, universal in those which relate to Zoology, so that the application of the syllable "sperm" in the innovatory fashion of our authors would produce a gratuitous confusion in the subject, and it is earnestly to be hoped that they will think fit to reconsider their determination on this point. The change they recommend certainly cannot be said to supply the basis of "a symmetrical system" of terminology, and instead of "redeeming" the confusion that at present meets the student at the outset of his researches, it would be much more likely to intensify that confusion, and to hide from learners one of the most important lessons they are likely to learn, the substantial identity in plants and animals of many physiological processes, especially those relating to reproduction.

The question of what the product of sexual fusion is to be called has still to be considered. "Oospore," the term used by the German school and their English followers, is clearly inadmissible when once "spore" has received the strict limitation mentioned above. It has always seemed to me most convenient to speak of the fertilised oosphere as the "oön,"* a term which seems directly suggested by Oophore or Oophyte. "Oön" is merely the Greek equivalent for egg, the simplest and most convenient term for the result of the union of the sexual elements. Van Tieghem says ('Traité,' 2me ed., p. 26):—"Le produit de cette combinaison est une cellule nouvelle, dont la membrane ne tarde pas à se couvrir d'une couche de cellulose, qui est capable de développement ultérieur et qu'on appelle un *œuf*," and he accordingly uses "œuf," or egg, in all such cases with admirable results in the way of attaining uniformity, and rendering homologies clear.

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* See an exhaustive criticism of the 'Handbook' by the latter of these writers, which has appeared since the present notice was in type. 'Nature,' vol. xl., p. 217.

† Mr. R. J. Harvey Gibson, in an interesting pamphlet on this question (Proc. Biol. Soc., Liverpool, vol. ii.), suggests the further extension of this uniformity of terms by the use of the words "spermarium, sperm, ovarium, ovum," for the male and female organs and their contents, in all cases, in both the Botanical and Zoological divisions of Biology.

"Oosperm" is used by Messrs. Bennett and Murray for the fertilised oosphere, and this compound is far from deserving the absolute condemnation which justly awaits Carposperm, Zygosperm, &c. Indeed, a valuable independent authority for the use of the term may be found in an unexpected quarter. F. M. Balfour writes (Balfour, Works, Mem. Ed., vol. ii., p. 82):—"It is clear that the ovum after fertilisation is an entirely different body to the ovum prior to that act, and unless the use of the same term for the two conditions of the ovum had become very familiar, a special term, such as *oosperm*, for the ovum after its fusion with the spermatozoon would be very convenient." The reference here is, of course, to the zoological department of Embryology, and in Professor Haddon's 'Introduction' to that subject the suggested terminology is definitely adopted. Balfour evidently uses oosperm in a very different sense to that in which it is used by the authors of the 'Handbook,' the "sperm" element in the compound plainly referring to the spermatozoon which is incorporated with the oosphere to produce the oosperm. If the term were used with this signification, many of the objections to it would disappear. Better even than "œuf" or "oön," it would express the combination of the male and female factors in the embryo or potential plant. The sexual stages in the life-history of a plant would then appear as follows:—

| | | |
|---|---|---|
| 1. Sexual generation. = | Oophyte or Oophore. | |
| 2. Sexual apparatus. | ♀ Oogone, (containing oosphere) | ♂ Spermogone, (containing spermatozoa) |
| 3. Sexual product. | Oo ——— | sperm. |

I have dealt with the subject of terminology at what may seem undue length; but in the work under review a very high degree of value is attached to it, and the present seems a good opportunity for calling attention to the great importance of securing uniformity in this matter in the two great biological subdivisions, and for urging the necessity of action towards the only really satisfactory solution of the question, namely, the submitting it to a congress selected from those botanists and zoologists who are experts in the formation and use of scientific terms.

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* The use of "oön" for the fertilised ovum or oosphere would obviate any objection of Mr. Harvey Gibson (*loc. cit.*) to the word "oophyte," which he describes as "applicable only to a thallus bearing female reproductive organs," and for which he substitutes the more accurate expression, "gamophyte." Vines (Encycl. Brit., vol. xxiv., Art. Vegetable Kingdom) uses "gametophyte."

With regard to classification, the authors have chosen to commence rather at the top of the series than at the bottom. There are many arguments in favour of either course of procedure. Perhaps, on the whole, the former alternative is preferable for beginners, and the latter for more advanced students. Huxley and Martin's 'Elementary Biology,' the arrangement which is referred to as an example to be followed, seems intended for students distinctly junior to those who will use the present 'Handbook,' which is also, however, admirably adapted for use in schools and colleges where Science is taught.

That classification adopted in some important German manuals, and for a while in great vogue among ourselves, which abolishes altogether the division into Algæ and Fungi, and substitutes for it one into three great classes, the *Zygosporeæ*, *Oosporeæ*, and *Carposporeæ*, "distinguished solely by the degree of complexity of the sexual process," is rejected in favour of the natural and time-honoured arrangement. The able arguments in favour of this conservative course will probably convince all who have not made up their minds on the relative merits of the two methods, that "the old is better."

It will perhaps be most helpful to those who are desirous of knowing what the systematic portion of the book is like, if a short sketch is given of each of the seven great subdivisions in which the Cryptogamia are arranged.

The *Vascular Cryptogams* are divided into two series, the Heterosporous, containing the *Rhizocarpeæ* and *Selaginellaceæ*, and the Isosporous, which comprehends all the more important and better-known classes. This classification, a familiar one to readers of Mr. Bennett's works, has advantages in the way of convenience, but the more usual division into *Filicineæ*, *Equisetineæ*, and *Lycopodineæ*, is far more in accordance with genetic relations, and lends itself more readily to the introduction of missing-link fossil forms. The detached description of the Vascular Cryptogams is preceded by a very complete and lucid account of the homologies between their organs of reproduction and those of the Phanerogams, which will give the student a clear idea of one of the most difficult subjects in the whole range of botanical study. Similarly clear descriptions are given of the phenomena of Apospory and Apogamy.

The *Muscineæ* (Bryophyta) present no novelty in their classification. The account of the alternation of generations in the Mosses and of the identity of the sporogone with the sporophyte generation is given with remarkable clearness, so as to be quite intelligible even to one reading of it for the first time.

The little group of *Characeæ* have the whole third subdivision to themselves on what will probably appear to many botanists the insufficient ground of their vegetative structure approximating to Cormophytes rather than Thallophytes.

The *Algæ* follow the classification of an able and original paper read by Mr. Bennett before the Linnean Society in 1887. This is based altogether on assumed affinities, upon which lines, as is rightly observed, any natural classification must proceed. The fact of evolution is completely taken for granted, and the only point upon which doubt is entertained is the exact course along which evolution has travelled. We miss, however, the delightfully definite genealogical table of the original paper, reminding one of Haeckel in his most dogmatic moods, and showing how the "primordial germ" begat *Schizomycete*, *Chroococcus*, and *Protococcus*, and from them all the plant-families of the earth have sprung. Perhaps the writer has found that speculative botanical phytogenesis is not altogether such "plain sailing" as he imagined.

The part of the work devoted to the *Fungi* presents in comparatively small space the result of an immense amount of reading and observation. Necessarily based upon De Bary (whose grouping is given in an order which exactly inverts the arrangement of Goebel), it includes a very large number of references to the latest literature on the subject. The mention of Plowright's *Uredineæ and Ustilagineæ* (London, 1889) shows that the department of British Fungology has been brought up to the latest date. As an example of the clear and full exposition of a difficult subject, special attention may be directed to the account of the symbiosis or consortism of the algal and fungal elements of Lichens. The section concludes as follows (p. 322):—"Many systematic lichenologists who have been unable to shake off the traditions of their study still cling to the old view of the independent nature of Lichens. It is hardly necessary to point out that the judgment of morphologists on such matters is the one to be trusted, especially as the matter has once and for all passed beyond the state of trust in authoritative opinion into the perfect state of complete proof." The systematic lichenologists referred to will probably be excused for finding in the last sentence a trifle too much dogmatism.

The sixth subdivision is that of the *Mycetozoa*. Those who are acquainted with recent researches of Mr. Lister into the predatory habits of this interesting group of animals, will marvel that they have not been relegated to their proper place in the Zoological Kingdom.

The *Protophyta*, composed of the combined *Schizophyceæ* and *Schizomycetes*, form the last great group. In it are included many of those organisms which present problems of the highest interest, and have given rise to the keenest controversy. As is well pointed out, much help may be gained, when deciding the most difficult points with regard to genetic affinities, by "taking into account the phenomenon of the constant appearance of degeneration or retrogression in the Vegetable Kingdom." *Saccharomyces*, for example, with other important genera previously regarded as protophytal, are removed to the class of retrogressive members of a higher family, and appear as much degraded Ascomycetous forms. Of the many interesting groups of the *Protophyta*, the most interesting from many points of view is that of the Bacteria, and it is with an accurate account of what is actually known of them that the volume closes.

To each of the seven groups mentioned there is appended an account of the fossil remains belonging to it, when any such are known to occur; and the comparatively brief portion of the book thus devoted to Palæophytology probably contains the most concise and trustworthy sketch of the subject which is available to the student. This is only what might be expected from the fact that, as intimated in the preface, this portion of the work has passed through the hands of Mr. Carruthers. The views taken of controverted positions are generally those which are identified with the name of that distinguished palæobotanist, ex. gr., *Nematophycus* (*Prototaxites*) appears among the Algæ; *Peronosporites* among the *Oomycetes; Volkmannia* and *Calamostachys* are described as Equisetaceous fructifications, and allusion is made to their possession of potential elaters; the Gallican heresy of Brongniart which places *Sigillaria* among the Gymnosperms is sternly rebuked:—"Its true place is undoubtedly near akin to *Lepidendron* in the order *Selaginellaceæ*." But surely, instead of the mention of Van Tieghem as the authority for the diploxylous leaf-trace bundles, the name given ought to have been that of our own countryman, Prof. Williamson, the "*malleus hæreticorum*," who, boldly contending for the faith, has since 1870 given the true explanation of a secondary centrifugal xylem, while Van Tieghem is only a semi-repentant follower of the heresiarch Brongniart.

The bibliography of this part of the work points to an undoubted want in our botanical literature, which will, it is to be hoped, be soon supplied by some competent writer. The only English text-books on Palæophytology mentioned, or indeed that could be mentioned, are those of Balfour and Dawson. Balfour had no special attainments in this department of Botany, and his work, even if a convenient manual when first issued, has now become so obsolete that it is, in more senses than one, a Fossil Botany. Dawson's book, though quite recent, is not at all suited to the wants of the British botanist. It is adapted to the meridian of Toronto rather than to that of London, its examples being to a large extent taken from American sources unfamiliar to us. It suffers, moreover, from an entire want of proportion, undue space being given to the fancies of the writer on comparatively trivial matters, the test of the importance of any question apparently being whether it has been the subject of a Dawsonian memoir or not. Of course we are to have the inevitable Clarendon Press translation of a German work. Solms-Laubach's 'Palæophytologie' in an English dress will doubtless be a valuable addition to botanical and geological libraries; but, in addition to this, we certainly want a work founded to a large extent on British examples, and referring, where possible, to specimens accessible to our own students. Some years ago, I urged upon Prof. Williamson the need of such a Manual, and in reply, while fully acknowledging the reality of the want, he said that he had been obliged by the pressure of original work to give up the idea he had entertained of some undertaking of the kind. There is still less probability now that we shall have any such treatise at the hands of that genial veteran; but there is another botanist, whose high reputation and great opportunities for investigation point him out as the writer most capable of supplying a text-book of Botanical Palæontology. Is it too sanguine to suppose that the sketches given in the 'Handbook' encourage us to look forward to some such work from the pen of the Keeper of the Botanical Department in the British Museum?

To return to our main subject: the illustrations are very plentiful* (382 being supplied instead of the 378 stated on the title-page), and of excellent quality, but, as might be expected, comparatively few are original; indeed, the painful familiarity of some old friends is likely to produce on the botanical student the same feeling of irritation which is engendered in the general public by the "Shavers," the "Bubble-blower," and "He won't be happy ill he gets it."

The Index deserves special mention, as being one of the fullest and most accurate in any recent botanical publication. The quotation of the authority for each genus and species renders it much more precise and useful, and the indexing of illustrations by means of different type is an admirable idea accurately and fully carried out. With this last word of praise must conclude the notice of a work which adequately supplies a long-felt want on the part of the Cryptogamic student, reflects credit upon its authors, and is a pleasing proof of the thoroughness with which the study of Botany is prosecuted in this country.

Percy W. Myles.

New Books.—F. J. Hanbury, 'Illustrated Monograph of British Hieracia' (London, 37, Lombard St.: 4to, pt. 1, tt. 3, pp. 8: 6*s*.). — Lojacono Pojero, 'Flora Sicula' (Palermo, Virzì: vol. i., pt. i., 4to, pp. 234, xiv., tt. 20). — L'Abbé Boulay, 'Les Arbres' (Lille, Bergès: 8vo, pp. 87: 1 *fr*.). — F. Tornabene, 'Flora Ætnea' (Catina, Galati: vol. i., 8vo, pp. xxxvii. 256). — H. Bernheim, 'Taschenbüchlein für den bakteriologischen Praktikanten' (Würzburg, Stabers: 8vo, pp. 36). — J. H. Maiden, 'The useful Native Plants of Australia' (London, Trübner: 8vo, xii. 696).—Dujardin-Beaumetz & E. Égasse, 'Les Plantes Médicinales' (Paris, Doin: 4to, pp. 845, tt. 40, 1034 cuts: 25 *fr*.). — J. Hérail, 'Organes Reproducteurs et formation de l'œuf chez les Phanérogames' (Paris, Steinheil: 4to, pp. 123).—A. Petry, 'Die Vegetations Verhältnisse des Kyffhäuser Gebirges' (Halle, Tausch: 4to, pp. 55).—E. Fiek, 'Excursions Flora für Schlesien' (Breslau, Kern: 8vo, pp. 259).—O. Eberdt, 'Die Transpiration der Pflanzen' (Marburg, Elwert: 8vo, pp. 98, tt. 2). — E. F. Belzung, 'La Chlorophylle et ses fonctions' (Paris, Pichon: 4to, pp. 106).—H. Potonié, 'Illustrierte Flora von Nord- und Mittel Deutschland' (4th ed.: Berlin, Springer:

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* The reason of this discrepancy is, apparently, the fact that four of the engravings appear in duplicate. This honesty in numeration is commended to the notice of those publishers who unblushingly make one poor block do duty several times in the same volume, and count it each time as a separate illustration.

8vo, pp. viii. 598; 598 cuts). — H. Dingler, 'Die Bewegung der Pflanzlichen Flugorgane' (München, Ackermann: 8vo, pp. ix. 342, tt. 8). — E. Huet, 'Catalogue des Plantes de Provence' (Pamiers, Galy: 8vo, pp. 165). — A. G. Garcin, 'Recherches sur les Apocynées' (Lyon, Plan: 8vo, pp. 256, tt. 2).—K. Goebel, 'Pflanzenbiologische Schilderungen' (Marburg, Ehrert: 1st part, pp. iv. 239, tt. 9; 98 cuts).—J. B. De Toni, 'Sylloge Algarum' (Chlorophyceæ: Padua: 8vo, pp. cxxxix. 1315: 92 *fr.*).—E. Niel, 'Cat. des Plantes croissant dans le Département de l'Eure' (Rouen, Métérie: pp. 138). — G. Egerton-Warburton, 'Names and Synonyms of British Plants' (London, Bell: 8vo, pp. xxxvi. 160: 2*s.* 6*d.*).

## Articles in Journals.

*Annals of Botany* (dated May, published Aug.). — J. D. Hooker & C. A. Barber, '*Pachytheca*' (2 plates).—J. E. T. Aitchison, 'The Source of Badsha or Royal Salep' (*Allium Macleanii:* 1 plate).—E. Groom, 'The Function of Lacticiferous Tubes' (1 plate).—A. B. Rendle, 'Vesicular Vessels of the Onion' (1 plate). — T. Johnson, 'The Nursing of the Embryo and other points in *Myzodendron punctulatum*' (2 plates). — T. W. Fulton, 'Dispersion of Spores of Fungi by the agency of Insects' (1 plate). — F. O. Bower, 'The Pitcher of Nepenthes' (1 plate). — J. M. Macfarlane, 'Pitchered Insectivorous Plants' (1 plate). — C. B. Clarke, 'An abnormal Cyperacea.' — A. E. Shipley, '*Macrosporium parasiticum.*' — S. H. Vines, 'The Mechanism of Stomata.'

*Bot. Centralblatt* (Nos. 29–35). — E. Overton, 'Beitrag zur Kenntniss der Gattung *Volvox*' (4 plates). — (Nos. 29, 30). O. Boeckeler, 'Ein neues Cyperaceen-genus' (*Cylindrolepis*).— —. Sadebeck, 'Ueber die durch Pilznngriffe hervorgebrachten maserähnlichen Zeichungen in tropischen Hölzern.'—(No. 32). 'Ueber die Dauer der Keimfähigkeit der Samen und Terminalknospenbildung bei den Weiden.' — (No. 33). J. B. De Toni, '*Phyllactidium arundinaceum.*'

*Botanical Gazette* (July). — R. Thaxter, 'Culture of *Gymnosporangium.*'—C. Robertson, 'Flowers and Insects' (*Viola*, *Clintonia*). —C. W. Hargitt, 'Variation in *Calla.*'

*Bot. Zeitung* (July 19, 26). — J. Wortmann, 'Ueber die Beziehungen der Reizbewegungen wachsender Organe zu den normalen Wachsthumserscheinungen.' — (Aug. 2). H. Vöchting, 'Ueber eine abnorme Rhizom-Bildung.'—(Aug. 9–23). A. Wieber, 'Ueber Anlange und Ausbildung von Libriformfasern in Abhängigkeit von äusseren Verhältnissen.'

*Bull. Bot. Soc. de Belgique* (xxviii. 1: Aug. 19).—C. Van Bembeke, 'Recherches sur la morphologie du *Phallus impudicus.*'—F. Crépin, 'Considerations sur quelques faits concernant le genre *Rosa.*'—P. A. Saccardo, 'Mycetes Sibirici' (3 plates).

*Bull. Soc. Bot. de France* (xxxvi. 3: Aug. 1). — J. de Szyszylowicz, 'Excursion Botanique du Monténégro' (*Barbula montegrina* Breidl. & Szysz., *Cerastium dinaricum* Beck & Szysz., *Dianthus Nicolai* Beck & Szysz., *D. medunensis* Beck. & Szysz., spp. nn.). —

—. Thouvenin, ‘Sur l’appareil de soutien dans les tiges des Saxifrages.’—L. Daniel, ‘Structure comparée de la feuille et des folioles de l’involucre dans les Cynarocéphales et généralités sur les Composées.’ — E. Bornet, ‘Les Nostocacées hétérocystés du ‘Systema Algarum’ de C. A. Agardh (1824) et leur Synonymie actuelle (1889).’—A. M. Hue, ‘Lichenes Yunnanenses.’

*Bull. Torrey Bot. Club* (Aug.). — C. H. Kain & E. A. Schultze, ‘A Fossil Marine Diatomaceous Deposit from Atlantic City’ (2 plates).—M. S. Bebb, ‘*Salix argyrocarpa* and *S. Uva Ursi*.’—L. H. Bailey, ‘*Carex umbellata*.’ — J. G. Lemmon, *Draba Crockeri*, *Nama densa*, spp. nn.

*Gardeners’ Chronicle* (Aug. 10). — *Gladiolus Leichtlinii* Baker, n. sp.—G. Henslow, ‘Colour in Plants.’—(Aug. 17). R. A. Rolfe, ‘*Cycnoches pentadactylon*.’—(Aug. 24). *Eulophia bella* N. E. Br., n. sp.—(Aug. 31). *Phaius philippinenensis* N. E. Br., n. sp.

*Journal de Botanique* (July 1). — C. Flahault, ‘Herborisations aux environs de Montpellier.’ — L. Guignard, ‘Observations sur le pollen de Cycadées.’ — Drake del Castillo, *Wickstrœmia Balansæ*, sp. n. — (July 16). D. del Castillo, ‘Contribution à la Flore de l’Amérique équatoriale’ (*Centropogon erythræus*, *C. gracilis*, *C. reticulatus*, *C. capitatus*, *C. gesneræformis*, *C. hirtiflorus*, *C. pallidus*, spp. nn.).—J. Costantin, ‘*Echinobotryum* & *Stysanus*.’

*Journ. Linn. Soc.* (xxv. 171: July 27).—R. A. Rolfe, ‘Morphological and Systematic Review of *Apostasieæ*’ (*Neuwiedia Lindleyi*, *N. Curtisii*, *Apostasia gracilis*, *A. latifolia*, spp. nn.: 1 plate). — G. Murray, ‘*Boodlea*, a new Genus of *Siphonocladaceæ*’ (*B. coacta*, sp. unica). — R. Baron, ‘Flora of Madagascar.’ — J. G. Baker, ‘Further Contributions to the Flora of Madagascar’ (*Pittosporum capitatum*, *Garcinia pachyphyllus*, *G. aphanophlebia*, *Psorospermum malifolium*, *P. membranifolium*, *Xerochlamys pubescens*, *Leptolæna cuspidata*, *Hibiscus phanerandrus*, *Dombeya gemina*, *D. xiphosepala*, *D. botryoides*, *Speirostyla* (gen. nov. *Sterculiacearum*) *tiliæfolia*, *Grewia Radula*, *G. repanda*, *G. discolor*, *G. cernua*, *G. bracteata*, *G. celtidifolia*, *Hugonia brewerioides*, *Erythroxylon recurvifolium*, *E. capitatum*, *Triaspis axillaris*, *Toddalia densiflora*, *T. macrophylla*, *Zanthoxylum madagascariense*, *Byttneria nitidula*, *Commiphora cuneifolia*, *Turræa cuneifolia*, *T. malifolia*, *T. rhamnifolia*, *Chailletia oleifolia*, *Olax andronensis*, *Elæodendron lycioides*, spp. nn.).

*Oesterr. Bot. Zeitschrift* (Aug.). — R. V. Wettstein, ‘Die Gattungen *Erysimum* & *Cheiranthus*’ (1 plate). — L. Celakovský, ‘*Althæa armeniaca* in Ungarn.’—A. Zahlbruckner, *Lucuma Baillonii*, n. sp.—J. A. Bäumler, Mycologische Notizen (*Phyllosticta stomacola*, n. sp.). — E. Woloszczak, ‘Kritische Bemerkungen über siebenbürgische Wieden.’—K. Vandsa, ‘Beiträge zur Kenntniss der Flora von Sud-Hercegovina’ (concluded).

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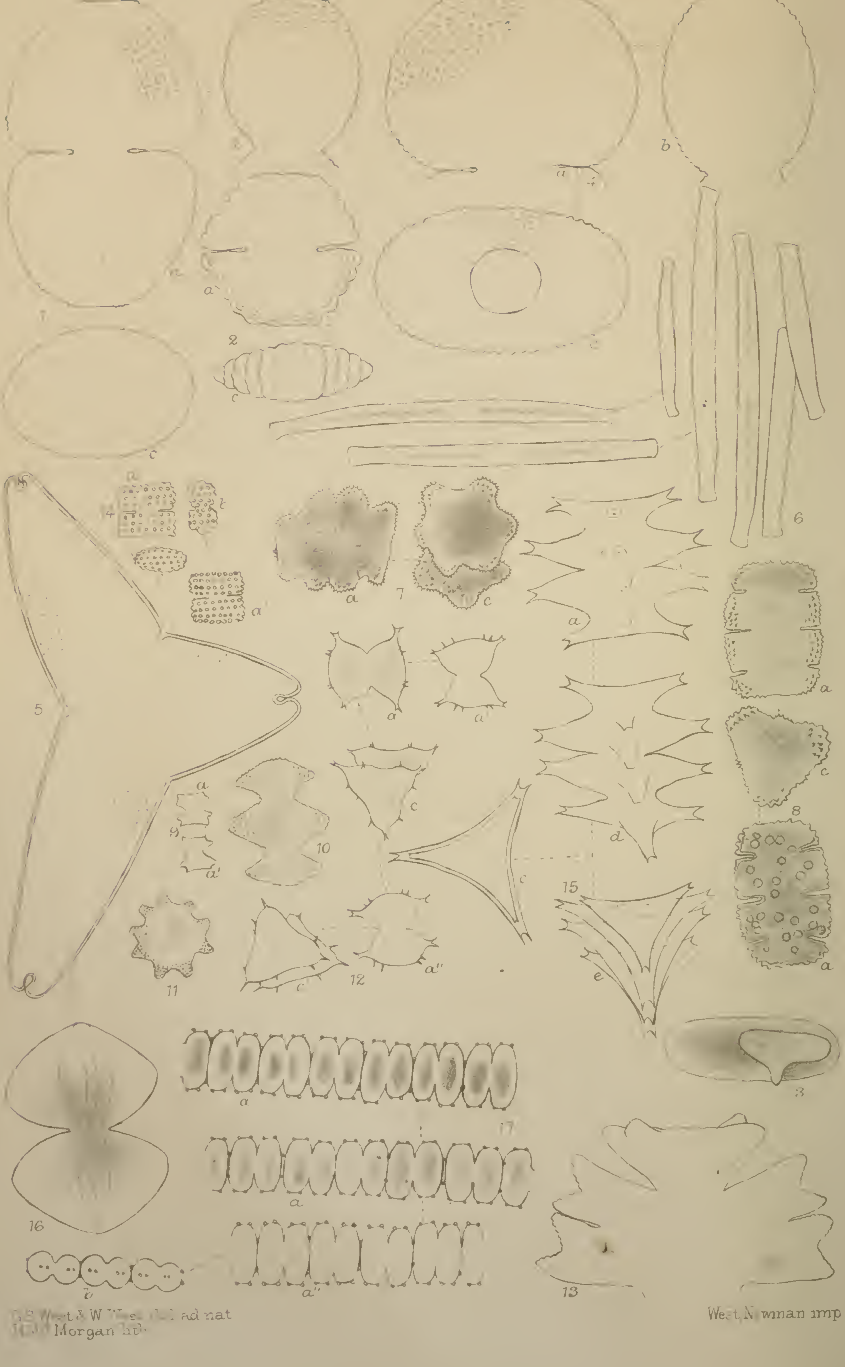
We regret to announce the death of the Rev. Miles Joseph Berkeley, which took place at Sibbertoft, Market Harborough, on the 30th ult. A memoir of his life will appear in our next issue.

Tab 291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G.S. West & W. West del. ad nat
Morgan lith

West, Newman imp

# THE FRESH-WATER ALGÆ OF NORTH YORKSHIRE.

By William West, F.L.S.

(Plate 291.)

The list of species in this paper is the result of a very large number of gatherings from all kinds of localities made in different parts of N. Yorkshire. The material which has proved the best was collected by myself at the end of May, 1888, from scores of places over a wide area on Cronkley and Mickle Fells. I also made gatherings in other parts of Upper Teesdale, as near Winch Bridge. Other good gatherings were made during the last two years by my son, G. S. West (who has also greatly assisted me in preparing this paper) and myself at the following places:—Great Shunnor Fell, Cotterdale, Moorcock Inn to Thwaites' Bridge, Scarborough (especially the "Mere"), Seamer, Strensall (including places a few miles south, as Warthill), &c. Mr. I. Robinson, of Hertford, also lent me some beautiful slides of Diatoms, which he had prepared from his own gatherings in the Whitby and Pickering district. Mr. J. Beanland, of Bradford, also made some gatherings for me at Muker, Marske (near Richmond), Holwick, Middleton, Dalton, Romaldkirk, Reeth, Rokeby, &c.

An excellent paper on the Fresh-water Algæ of Strensall Common was published by my able friend, Mr. W. B. Turner, F.R.M.S., F.C.S., in the 'Naturalist' for December, 1883. In the same Journal for September, 1887, there is another note on the Algæ of Gormire and Thirkleby by the same writer, and also one by myself on Algæ at Birkdale Tarn Moss, in the same Journal for August, 1889. These three papers, together with the present one, form a fair nucleus to the algal flora of the N. Riding. In the Strensall list 154 species and 7 varieties were enumerated. In our Strensall gathering I have noticed a great number of the species in Mr. Turner's list, but I have only here recorded those not mentioned in his paper. A further record of *Cosmarium Regnesi* Reinsch and *Onychonema Nordstedtiana* Turn. was published in the 'Naturalist' for February, 1886. With these two species added to the three lists above-mentioned, there are 191 species and 10 varieties enumerated. In the present article the number recorded is 427 species and 20 varieties, of which 300 species and the 20 varieties are additional to those previously on record. The total number of Algæ known for N. Yorkshire, as recorded in this article and the others mentioned, is 491 species, with 30 varieties.

As many districts of the Riding are totally uninvestigated, a considerable number of species will no doubt yet be added when the Riding has been further examined, especially in such genera as *Vaucheria* and *Œdogonium*. Where a species is said to be "common," it has been seen from numerous localities, "frequent" being affixed to those species which were found to be fairly and widely distributed. There are several new species and varieties in the paper. Some species that are usually frequent were absent in all the gatherings, such as *Desmidium Swartzii* Ralfs, *Xanthidium armatum* Bréb., and *Arthrodesmus convergens* Ehrbg. *A. Incus* Hass. was very scarce. On the other hand, some rare species are frequent, as *Cosmarium tetragonum* Nag., *C. cyclicum* Lund., *C. quadrifarium* Lund., forma *hexasticha* Nord. (*C. hexastichum* Lund.), *C. subspeciosum* Nord., *Staurastrum acarides* Nord., &c.

The following contractions are used for the six localities quoted most often:—

M. for Mickle Fell.
C. for Cronkley Fell.
S. for Great Shunnor Fell.
Sc. for Scarborough Mere.
Se. for Seamer.
St. for Strensall.

The sequence of the Diatoms is after Rabenhorst; the rest are arranged in accordance with the method adopted in Cooke's works.

## Class CHLOROPHYLLOPHYCEÆ.

### Order Coccophyceæ.

### Family Palmellaceæ.

*Eremosphæra viridis* D. By. M., C.

*Pleurococcus vulgaris* Meneg. Common.

*Glœocystis ampla* Kg. M.—*G. vesiculosa* Näg. St.—*G. botryoides* Kg. M.

*Schizochlamys gelatinosa* A. Br. St.

*Palmella mucosa* Kg. C., S., Sc., Cotterdale.—*P. hyalina* Bréb. Sc., Cotterdale.

*Tetraspora gelatinosa* (Vauch.). Levisham.—*T. lubrica* Roth. S.

*Botryococcus Braunii* Kg. S.

*Apiocystis Brauniana* Näg. Sc.

*Rhaphidium aciculare* A. Br. Sc., Muker, Masham.—*R. falcatum* (Corda) Cooke. C., Sc.

*Dictyosphærium Ehrenbergianum* Näg. Sc., M., St.

*Palmodactylon subramosum* Näg. S., C.

*Nephrocytium Agardhianum* Näg. M.—*N. Nägelii* Grun. M.

### Family Protococcaceæ.

*Protococcus viridis* Ag. Common.

*Chlorococcum gigas* Grun. S., Sc.

*Polyedrium tetrædricum* Näg. M.—*P. longispinum* Rabh. M.—*P. enorme* Rabh. M.

*Scenedesmus obtusus* Meyen. M., Sc.—*S. acutus* Meyen. M., C., Sc.—Var. *obliquus* Rabh. Sc.—*S. antennatus* Bréb. Sc.—*S. quadricauda* Bréb. M., Sc.

*Pediastrum angulosum* Ehrbg. Sc.—*P. Boryanum* Turp. M., Sc.—*P. pertusum* Kg. Sc.—*P. Ehrenbergii* A. Br. Sc.

*Cœlastrum microsporum* A. Br. Sc.

*Hydrianum heteromorphum* Reinsch. M., Sc.

### Family Volvocineæ.

*Chlamydococcus pluvialis* A. Br. Sc., Se., Cotterdale.

*Pandorina morum* Bory. C.

*Gonium pectorale* Müll. S., Sc.

### Order Zygophyceæ.

### Family Desmidieæ.

*Gonatozygon Brebissonii* D. By. S., St.

**G. læve**, n. sp. Joints narrowly fusiform, 7–20 times as long as broad, and *quite smooth ;* ends slightly dilated. Endochrome as in *G. Brebissonii* D. By. 5–8 μ broad. I should not have separated this species from the last, but for its smooth cytioderm. This was frequently seen. M. Fig. 6.

*Sphærozosma pygmæum* Cooke. M.—*S. excavatum* Ralfs. M.

*Hyalotheca dissiliens* Ralfs. M., C., S.—Var. *hians* Wolle. C.—*H. mucosa* Ralfs. C.

*Bambusina Brebissonii* Kg. M.

*Docidium Ehrenbergii* Ralfs. S., C., St.—Var. *granulatum* Ralfs. C., S. — *D. clavatum* Kg. S., C. — *D. truncatum* Bréb. St. — *D. nodulosum* Bréb. C., M., Rokeby.—*D. minutum* Ralfs. M.

*Closterium obtusum* Bréb. St. — *C. Lunula* Ehrbg. C., Sc., M. — *C. Cucumis* Ehrbg. M. — *C. acerosum* Ehrbg. Frequent. — *C. lanceolatum* Kg. Frequent. — *C. turgidum* Ehrbg. S. — *C. gracile* Bréb. S. — *C. Ehrenbergii* Meneg. Frequent. — *C. moniliferum* Ehrbg. Frequent.—*C. Jenneri* Ralfs. M.—*C. Leibleinii* Kg. M., Sc. — *C. Dianæ* Ehrbg. Frequent. — *C. parvulum* Näg. St. — *C. Venus* Kg. M., St., Sc.—*C. costatum* Corda. M., S., St.—*C. striolatum* Ehrbg. M., C., S., St., Se. — *C. intermedium* Ralfs. S. — *C. juncidum* Ralfs. C. — *C. lineatum* Ehrbg. M. — *C. rostratum* Ehrbg. St., C., S.— *C. setaceum* Ehrbg. M.— *C. Kutzingii* Bréb. St.—*C. cornu* Ehrbg. M.—*C. acutum* Bréb. M., Sc., Se., Reeth. —*C. pronum* Bréb. M.—*C. subulatum* Kg. S.—*C. linea* Perty. M.

*Penium margaritaceum* Bréb. M.—*P. cylindrus* Bréb. M.—*P. digitus* Bréb. Frequent.—*P. lamellosum* Bréb. M.—*P. interruptum* Bréb. M., S. — *P. closterioides* Ralfs. M., C., Se., Reeth. — *P. navicula* Breb. M. — *P. Brebissonii* Ralfs. Common. This was very abundant in a small pool at above 2200 ft. on Great Shunnor Fell. The fig. (3) with parasite was from Mickle Fell.—*P. Mooreanum* Archer. M. — *P. minutissimum* Nord. M. — *P. cucurbitinum* Biss. M.—*β. subpolymorphum* Nord. M. This agrees exactly with the figure and dimensions in Nordstedt's 'Fresh-water Algæ of New Zealand and Australia,' published in Stockholm, 1888.

*Cylindrocystis diplospora* Lund. M., S.—*C. crassa* D. By. Frequent.

*Tetmemorus Brebissonii* Ralfs. M., Cotterdale. The abnormal form was from Mickle Fell.— *T. lævis* Ralfs. M., S., Cotterdale.— *T. granulatus* Ralfs. Common.

*Micrasterias mucronata* Rabh. C.— *M. Americana* Ralfs. M.— *M. Americana* Ralfs, a form of var. *recta* Wolle. M. Fig. 13.—*M. denticulata* Bréb. M., S., Se.—*M. rotata* Ralfs. M., C.—*M. papillifera* Bréb. C. — *M. truncata* Bréb. St., M. — *M. crenata* Bréb. M., C.

*Euastrum oblongum* Grev. C., M. — *E. crassum* Kg. C., M.— *E. affine* Ralfs. M. — *E. insigne* Hass. C., M. — *E. didelta* Ralfs. C., M.—*E. cuneatum* Jenner. M. — *E. ansatum* Ralfs. M. — *E.*

*circulare* Hass. M.—*E. Jenneri* Archer. St.—*E. pectinatum* Bréb. M., C.—*E. gemmatum* Kg. M. — *E. incavatum* Josh. et Nord. M. This interesting species was quite typical, as figured by Joshua in Journ. Bot., Feb. 1885.—*E. rostratum* Ralfs. C.—*E. elegans* Bréb. C., M.—*E. crassicolle* Lund. M.—*E. binale* Ralfs. S., M.—Var. *insulare* Wittr. M. — Var. *elobatum* Lund. C., M. — *E. venustum* Bréb. M.

*Cosmarium quadratum* Ralfs. C., M. — *C. plicatum* Reinsch. S., M.— *C. Hammeri* Reinsch. Sc.— *C. Nymannianum* Grun. S. — *C. homalodermum* Nord. M., C., S., Reeth. — *C. anceps* Lund. M., C. — *C. granatum* Bréb. M. — *C. Cucumis* Corda. M., Sc., Moorcock Inn.— *C. circulare* Reinsch. M. This is not in Cooke's 'British Desmids,' though it is to be found in Mr. Roy's paper on Perthshire Desmids in the 'Scottish Naturalist' for April, 1877.— *C. Ralfsii* Bréb. M.—*C. pyramidatum* Bréb. M., S., C.—*C. galeritum* Nord. S., M. —*C. pseudonitidulum* Nord. M.— *C. nitidulum* De Not. M.— *C. subtumidum* Nord. C.— *C. Phaseolus* Bréb. St. —*C. Gotlandicum* Wittr. M.—*C. bioculatum* Bréb. M., St., Sc., S. —*C. tinctum* Ralfs. M., St., S, — *C. pygmæum* Archer. M. — *C. Meneghinii* Bréb. C., M.—*C. obliquum* Nord. M.—*C. læve* Rabh., var. *septentrionale* Wille. M., Sc., C., Cotterdale. — *C. crenatum* Ralfs. S., M. — *C. Holmiense* Lund. M. — *C. undulatum* Corda. M., St.—*C. tetragonum* Näg. M.

**C. granulatum.** n. sp. Frond large, somewhat elliptic, about one-half longer than broad, constriction deep and narrow, semicells suborbicular; vertical view elliptic-oblong, side view of semicell broadly oval. Membrane minutely granular. Length 125 $\mu$; breadth 85 $\mu$; isthmus 25 $\mu$. C. Very sparingly seen. Fig. 4.

**C. eboracense,** n. sp. Frond rather large, about one-half longer than broad, elliptic-oblong, constriction deep and narrow, semicells roundly pyramidal; vertical view broadly elliptic, side view of semicell roundly oval. Membrane minutely granular in a radiate and concentric manner. Length 100–110 $\mu$; breadth 63–68 $\mu$; isthmus 20–22 $\mu$. C. This was observed many times during the examination of a large quantity of material. Fig. 1.

*C. tetraophthalmum* Bréb. Frequent. — *C. Brebissonii* Meneg. M., C., St., S. — *C. ovale* Ralfs. S., St. — *C. conspersum* Ralfs. M., S.—*C. latum* Bréb. M. — *C. quaternarium* Wittr. et Nord. C. —*C. margaritiferum* Meneg. M., C., Cotterdale.—*C. Logiense* Biss. M., S. — *C. punctulatum* Bréb. St., C., Sc., Moorcock, Cotterdale. —*C. botrytis* Meneg. Common.—*C. præmorsum* Bréb. M., C., Sc. —*C. Broomei* Thw. S., M. — *C. ochthodes* Nord. M., Sc., C., S., Cotterdale. — *C. Boeckii* Wille. M. — *C. sphalerostichum* Nord. et Wittr. M., C.

**C. lepidum,** n. sp. Frond small, subquadrangular, scarcely as long as broad, constriction deep, sinus linear, apical angles faintly produced; vertical view elliptic, side view of semicell circular. Membrane having transverse rows of granules (giving a crenulate appearance to the whole margin). Length 16-17·5 $\mu$; breadth 17–18·5 $\mu$; isthmus 6·5–7 $\mu$. M. Only a few examples of this were seen. Fig. 14.

*C. cœlatum* Ralfs. M., C. — *C. ornatum* Ralfs. S. — *C. Kjellmanni* Wille. Near Moorcock. — *C. Blyttii* Wille. M. — *C. commissurale* Bréb. St. — *C. quinarium* Lund. M. — *C. quadrifarium* Lund., forma *hexasticha* Nord. (*C. hexastichum* Lund.). M. — *C. hexalobum* Nord. M. — *C. cyclicum* Lund. M. — Var. ANGULATUM, n. var. This differs from the type in having the front view distinctly subsexangular, and the apices less crenate. Length 50 μ; breadth 66 μ. M. This was almost as frequent as the type. Some specimens had their apices almost plane. Fig. 2. — *C. speciosum* Lund. M.—*C. subspeciosum* Nord. Sc., M.—*C. notabile* Bréb., var. *minor* Wille. M.— *C. orbiculatum* Ralfs. M.— *C. moniliforme* Ralfs. St., M.

*Calocylindrus tuberculatus* (Archer) Cooke. M. An extremely rare species.—*C. pseudo-connatus* (Nord.) Cooke. M. — *C. cucurbita* D. By. M., C., S., Sc. — *C. Thwaitesii* (Ralfs) Cooke. St., M., C. — *C. curtus* D. By. M. — *C. attenuatus* (Bréb.) Cooke. M. — *C. strangulatus* Cooke et Wills. M. Hitherto found only at Capel Curig, N. Wales.

*Xanthidium aculeatum* Ehrbg. C. — *X. antilopæum* Bréb. C.— *X. cristatum* Bréb. C.

*Arthrodesmus Incus* Hass. M.— *A. bifidus* Bréb., var. TRUNCATUS, n. var. This is smaller than the type, with the extremities shortened; front view with the ends but slightly concave; end view as in type. St. Fig. 9.

*Staurastrum dejectum* Bréb. M.—Var. *mucronatum* Ralfs. M.— *S. apiculatum* Bréb. M. — *S. Dickiei* Ralfs. St. — *S. cuspidatum* Bréb. M. — *S. aristiferum* Ralfs. M. — *S. lunatum* Ralfs. Sc.— *S. oligocanthum* Bréb. M. — *S. avicula* Bréb. M. — Var. ACICULIFERUM, n. var. M. This has two or more additional small spreading spines between each of the apical angles of the end view. Frequent. Fig. 12.—*S. Reinschii* Roy. M.—*S. hirsutum* Bréb. M., Sc., S.— *S. pilosum* Näg. M.—*S. teliferum* Ralfs. M., S.—*S. acarides* Nord. M.—Var. EBORACENSE, n. var. The lateral incisions are deeper, and almost linear. M. Fig. 8. — Var. HEXAGONUM, n. var. This has the end view sexangular. M. Fig. 7.—*S. spongiosum* Bréb. M.— *S. asperum* Bréb. M. — *S. muticum* Bréb. C., St. — *S. orbiculare* Ralfs. M. — *S. pygmæum* Breb. C., S., St. — *S. muricatum* Bréb. M., C., S., Muker. On both Mickle and Cronkley Fells there were forms of a *Staurastrum* which I think are very distinct varieties of *S. muricatum* Bréb. The "conic granules" of these varieties are rather spines, one of the varieties having them much denser than in the type. As an empty cell of this last variety could not be found, the arrangement of the spines could not be seen. (I have gathered this last large variety on Helvellyn.) The semicells are also somewhat trapezoid. Length up to 70 μ; breadth to 55 μ.—*S. punctulatum* Bréb. Frequent. — *S. pileolatum* Bréb. M. — *S. Meriani* Reinsch. M. — *S. alternans* Bréb. Sc.— *S. Kjellmanni* Wille. M. — *S. brachiatum* Ralfs. M. — *S. tricorne* Bréb. M., St., Cotterdale. — Var. β. Ralfs. St. — *S. cyrtocerum* Bréb. Sc. — *S. inflexum* Bréb. M. — *S. polymorphum* Bréb. M., C., near Moorcock Inn, S. — *S. paradoxum* Meyen. St. — Var.

*longipes* Nord. St.—*S. sexcostatum* Bréb. C., M.—*S. margaritaceum* Meneg. Frequent. The form having nine processes in end view and the abnormal form were from Mickle Fell.

### Family ZYGNEMACEÆ.

*Zygnema pectinatum* Ag. S.—*Z. parvulum* Cooke. C., St.—*Z. cruciatum* Cooke. C. — *Z. stellinum* Ag. M., C., Cotterdale. — *Z. Vaucherii* Ag., var. *stagnale* Kirch. M. — *Z. anomalum* Cooke. M., C. This was a frequent species on these Fells.

*Spirogyra crassa* Kg. Sc.— *S. nitida* Link. Sc.—*S. condensata* Vauch. S., Reeth, River Ure.—*S. longata* Vauch. M., C., Sc. S., —*S. flavescens* Cleve. Sc., C., St. — *S. Weberi* Kg. River Ure.—*S. tenuissima* Hass. Sc., River Ure.—Forma *inflata* Cooke. C.

*Zygogonium ericetorum* D. By., var. *aquaticum* Cooke. Frequent.

*Mesocarpus nummuloides* D. By. C., Masham, Moorcock. — *M. depressus* Cooke. M., C., Sc., River Ure.—*M. parvulus* D. By. M., C., Sc., Masham. — Var. *angustus* Hass. M. — *M. scalaris* D. By. Frequent.—*M. recurvus* Cooke. St.—*M. pleurocarpus* D. By. M., Moorcock, Se.

*Staurospermum gracillimum* Cooke. M., St., C., S., Cotterdale.

## Order SIPHOPHYCEÆ.

### Family BOTRYDIACEÆ.

*Vaucheria sericea* Lyngb. S.

## Order NEMATOPHYCEÆ.

### Family CONFERVACEÆ.

*Microspora fugacissima* Ag. Common.—*M. vulgaris* Rabh. C., St., Sc.—*M. floccosa* Thur. Frequent.

*Conferva fontinalis* Berk. M., C., Cotterdale.—*C. tenerrima* Kg. Common.—*C. bombycina* Ag. Common.

*Cladophora crispata* Kg. Near Middleton. — *C. glomerata* Kg. C., St., S.

### Family ŒDOGONIACEÆ.

*Œdogonium vernale* Wittr. Masham.—*Œ. Vaucherii* A. Br. C. —*Œ. undulatum* A. Br. S.—*Œ. calcareum* Cleve. C.—*Œ. punctato-striatum* D. By. St.

### Family ULOTRICHEÆ.

*Hormiscia moniliformis* Rabh. Frequent. — *H. zonata* Aresch. Common.—*H. bicolor* Cooke. Cotterdale, Moorcock, River Ure.

*Ulothrix tenerrima* Kg. Frequent.—*U. tenuis* Kg. River Ure.—*U. radicans* Kg. St.

### Family CHROOLEPIDEÆ.

*Chroolepus aureus* Kg. C., Moorcock.

### Family CHÆTOPHORACEÆ.

*Microthamnion vexator* Cooke. M., S., Masham, Sc., Se.

*Stigeoclonium tenue* Ag. Sc., Moorcock Inn.

*Chætophora elegans* Ag. M., Cotterdale.—*C. endivæfolia* Ag. St.

## Class PHYCOCHROMACEÆ.

### Order Cystiphoreæ.

### Family Chroococcaceæ.

*Chroococcus cohærens* Näg. M.—*C. turgidus* Näg. Frequent.—*C. macrococcus* Rabh. S.

*Glœocapsa polydermatica* Kg. St.—*G. arenaria* Rabh. St.

*Aphanocapsa rivularis* Rabh. M., Sc.—*A. Grevillei* Rabh. M.

*Merismopedia glauca* Näg. St., M., Sc.

### Order Nematogenæ.

### Family Nostoceæ.

*Nostoc muscorum* Ag. St.—*N. humifusum* Carm. M.—*N. cæruleum* Lyngb. S., M.—*N. verrucosum* Vauch. M.

*Sphærozyga elastica* Ralfs. M.

### Family Lyngbyæ.

*Spirulina oscillarioides* Turp. Sc., M., St.

*Oscillaria tenerrima* Kg. M., Marske.—*O. leptotricha* Kg. Moorcock, M.—*O. ærugescens* Drumm. C.—*O. tenuis* Ag. M.—Forma *viridis*. M., Se.—*O. muscorum* Carm. Moorcock, S.—*O. limosa* Ag. M., St.—*O. irrigua* Kg. River Ure.—*O. nigra* Vauch. S., Sc.—*O. Frölichii* Kg. S., Sc., Masham, Moorcock.

*Lyngbya vulgaris* Kirch. St.

### Family Scytonemeæ.

*Scytonema myochrous* Ag. C.

*Tolypothrix ægagropila* Kg., var. *pygmæa* Kg. Upper Teesdale.

*Stigonema mamillosum* Kg. C.—*S. turfaceum* Cooke. C.

## Class RHODOPHYCEÆ.

### Family Batrachospermeæ.

*Batrachospermum vagum* Ag. Sc., Castle Howard.

## Class DIATOMOPHYCEÆ.

### Family Melosireæ.

*Melosira varians* Ag. Frequent. — *M. nivalis* Sm. Lockton.—*M. orichalcea* Kg. Rokeby.

### Family Surirellæ.

*Campylodiscus spiralis* Sm. C.

*Surirella linearis* Sm. C., S., M. — *S. panduriformis* Sm. M., Rokeby. — *S. biseriata* Bréb. M., St., S., Sc. — *S. angusta* Kg. Marske, St., Rokeby. — *S. splendida* Kg. St., Sc. — *S. nobilis* Sm. M. — *S. ovalis* Bréb. Se., Staiths.— *S. ovata* Kg. St., Whitby.— *S. minuta* Bréb. St., M., Se., Reeth. — *S. pinnata* Sm. St., Dalton, Se.

*Cymatopleura elliptica* Sm. C.— *C. Solea* Sm. Frequent. — *C. apiculata* Sm. M.

### Family EUNOTIEÆ.

*Epithemia turgida* Kg. Common.—*E. Westermanni* Kg. C., S. —*E. Sorex* Kg. Cotterdale.—*E. gibba* Kg. C., S., Sc., Cotterdale. —*E. ventricosa* Kg. M., S., Lockton. — *E. Zebra* Kg. C., Cotterdale.—*E. rupestris* Sm. S.—*E. Argus* Kg. M., Masham, Holwick, Cotterdale, S.

*Eunotia diodon* Ehrbg. St.—*E. tetraodon* Ehrbg. St., Lockton. —*E. Arcus* Ehrbg. M., C., S., Goathland.—*E. majus* Sm. C., S., Se.—*E. gracilis* Ehrbg. Frequent.—*E. monodon* Ehrbg. M.—*E. pectinalis* Dillw. C., M., S. — *E. undulatum* (Sm.). Goathland.— *E. Soleirolii* Kg. Cotterdale.

### Family CYMBELLEÆ.

*Ceratoneis Arcus* Kg. S., Muker.

*Cymbella Ehrenbergii* Kg. Sc., Se.

*Cocconema lanceolatum* Ehrbg. Common.—*C. cymbiforme* Ehrbg. Frequent. — *C. Cistula* Hempr. Common. — *C. parvum* Sm. Common.

*Encyonema prostratum* Ralfs. Muker.— *E. cæspitosum* Kg. Romaldkirk, Rokeby.

*Amphora minutissima* Sm. M., Staiths. — *A. ovalis* Kg. Se., Sc., Whitby, Cotterdale.

### Family ACHNANTHEÆ.

*Cocconeis Pediculus* Ehrbg, Frequent. — *C. placentula* Ehrbg. Masham, Se., S.—*C. Thwaitesii* Sm. C., M.

*Achnanthidium microcephalum* Kg. Sc.

*Achnanthes exilis* Kg. M.

*Rhoicosphenia curvata* Rabh. Staiths, Holwick, Romaldkirk.

### Family FRAGILARIEÆ.

*Denticula crassula* Näg. S.

*Odontidium hiemale* Kg. M., Lockton, Sc. — *O. mesodon* Kg. Holwick, M.

*Fragilaria capucina* Desm. Lockton, Egton, M., St., Sc.—Var. *mesolepta* Rabh. Lockton.—*F. mutabilis* Grun. Frequent.

*Diatoma vulgare* Bory. Winch Bridge, Whitby, Lockton, M.— *D. elongatum* Ag. Whitby, Winch Bridge, Sc.

*Synedra lunaris* Ehrbg. Very common. — Var. *undulata* Rabh. Goathland. — *S. falcata* Bréb. C. — *S. pulchella* Kg. M., River Ure.—*S. minutissima* Kg. Sc. — *S. Ulna* Ehrbg. Common. — *S. delicatissima* Sm. Sc., St. — *S. splendens* Kg. Very common. — Var. *β*. Sm. St.—*S. obtusa* Sm. Egton.—*S. capitata* Ehrbg. St.

*Asterionella formosa* Hass. St., M., Romaldkirk.

### Family AMPHIPLEURÆ.

*Amphipleura pellucida* Kg. Sc., M.

### Family NITZSCHIEÆ.

*Nitzschia Amphioxys* Sm. M., River Ure, St., Sc. — *N. parvula* Sm. St., S., Marske.— *N. sigmoidea* Sm. Common. — *N. linearis* Sm. Frequent. — *N. tenuis* Sm. Frequent. — *N. minutissima* Sm. Whitby, Se., M.

*Nitzschiella acicularis* Rabh. M., Dalton, Whitby, Se.

### Family NAVICULEÆ.

*Navicula cuspidata* Kg. S., Sc., Se. — *N. rhomboides* Ehrbg. Common.—*N. serians* Kg. St., M.—*N. elliptica* Kg. M., Se.—*N. pygmæa* Kg. Sc.—*N. limosa* Grun. M., C.—*N. gibberula* Kg. M. —*N. inflata* Kg. M.—*N. Amphisbæna* Bory. Whitby, Marske, Sc., Se., St.— *N. ambigua* Ehrbg. St.— *N. pusilla* Sm. Whitby.— *N. anglica* Ralfs. Se., Reeth. — *N. rhyncocephala* Kg. Reeth. — *N. affinis* Ehrbg. Common. — *N. Amphirhyncus* Ehrbg. M., Se.— *N. producta* Sm. Marske, St. — *N. angustata* Sm. M., Sc. — *N. cryptocephala* Kg. Very common. — *N. dicephala* Ehrbg. M., Muker, Goathland, S.—*N. binodis* Ehrbg. Staiths, M.

*Pinnularia nobilis* Ehrbg. M., Se., St., C. — *P. major* Rabh. Frequent.— *P. Rabenhorstii* Ralfs. Levisham, Glaisedale, C., S.— *P. Tabellaria* Ehrbg. Lockton, S. — *P. gibba* Ehrbg. Lockton, S., M.—*P. lata* Rabh. M., S. — *P. viridis* Rabh. Very common. *P. stauroneiformis* Sm. Lockton, M. — *P. oblonga* Rabh. St., Se. —*P. alpina* Sm. M.— *P. radiosa* Rabh. Sc.— *P. viridula* Rabh. M. — *P. Dactylus* Ehrbg. M., S. — *P. acuminata* Sm. Sc., C.— *P. acuta* Sm. M.—*P. mesolepta* Sm. M.—*P. cardinalis* Ehrbg. C. —*P. divergens* Sm. M., Se., S.

*Frustulia saxonica* Rabh., var. *aquatica* Rabh. M.

*Pleurosigma attenuatum* Sm. Rokeby. — *P. lacustre* Sm. Se., Sc.—*P. Spencerii* Sm. Reeth, M., Se., St.

*Stauroneis Phœnicenteron* Ehrb. Common. — *S. anceps* Ehrbg. M., Whitby, St.

*Pleurostaurum acutum* Rabh. S.

### Family GOMPHONEMEÆ.

*Gomphonema tenellum* Kg. Sc.— *G. dichotomum* Kg. St., C.— *G. capitatum* Ehrbg. C., Se., S.—*G. constrictum* Ehrbg. Whitby, Staiths, Sc. — *G. geminatum* Ag. Upper Teesdale. — *G. Augur* Ehrbg. C.— *G. acuminatum* Ehrbg. M., Egton, S., Sc., Se.—*G. olivaceum* Kg. Sc.—*G. intricatum* Kg. S., M., C.

### Family MERIDIACEÆ.

*Meridion circulare* Ag. Common.—*M. constrictum* Ralfs. C., S., Cotterdale.

### Family TABELLARIEÆ.

*Tabellaria flocculosa* Kg. Common.— *T. ventricosa* Kg. M., S., Sc.—*T. fenestrata* Kg. Cotterdale, M.

Explanation of Plate 291. — The letter "a" indicates a front view, "b" a side view, "c" an end view (or from base of semicell). Figs. 15, 16, and 17 are to illustrate the article on 'The Fresh-water Algæ of Maine' in this Journal for last July. All the figures have an amplification of 400 diameters. — Fig. 1, *Cosmarium eboracense*, n. sp. 2, *C. cyclicum* Lund., var. *angulatum* n. var. 3, *Penium Brebissonii* Ralfs, with a parasite. 4, *Cosmarium granulatum* n. sp. 5, *Tetmemorus granulatus* Ralfs, an abnormal form. 6, *Gonatozygon læve*, n. sp. 7, *Staurastrum acarides* Nord., var. *hexagonum*, n. var. 8, *S. acarides* Nord., var. *eboracense*, nov. var. 9, *Arthrodesmus bifidus* Bréb., var. *truncatus*, n. var. 10, *Staurastrum margaritaceum* Meneg., an abnormal form. 11, A nine-ended form of the last. 12, *S. avicula* Bréb., var. *aciculiferum*, n. var. 13, A form of *Micrasterias Americana* Ralfs, var. *recta* Wolle. 14, *Cosmarium lepidum*, n. sp. 15, *Micrasterias pinnatifida* Ralfs, var. *trigona* W. West. 16, *Staurastrum angulatum* W. West, var. *subangulatum* W. West. 17, *Sphærozosma Aubertianum* W. West.

# CATALOGUE OF THE MARINE ALGÆ OF THE WEST INDIAN REGION.

By George Murray, F.L.S.

(Concluded from p. 262.)

## Geographical Distribution.

I have constructed the following tables in illustration of the distribution of the Algæ occurring in the West Indian Region, since this form of statement is at once shorter and clearer than any other I could devise. The information thus conveyed will doubtless interest the reader more than any part of the present Catalogue, as it has so interested me in the making of it. It should be explained that, to ensure accuracy, I have revised the statements of the geographical distribution given under the species, with the result that in some cases this distribution appears to be wider, while in others I have found reason to doubt the statements of others and of myself, adopted in the paper, which assign a wider field of occurrence to these forms. The difficulty of giving an absolutely accurate rendering of the case is very great, owing to the much-scattered sources of information on the distribution of Algæ, and I have in all cases of doubt preferred to under-estimate the range of a species. While there are errors in the tables beyond all question, I may claim to have striven to reduce these to the lowest limit, and the work of doing this, of tracing particular forms into the different regions of distribution, and the labour of consulting the chaotic literature of distribution, must be my excuse, if such errors be deemed by any one to be unwarrantable. I hope I shall not be considered to be taking credit to myself in stating the matter thus, but that it will be understood as part of an apology.

I.

| FLORIDEÆ. | West Indies. | Recorded from West Indies only. | WEST INDIAN SPECIES COMMON TO | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | N. Atlantic. | Mediterranean. | Warm Atlantic. | S. Atlantic and Cape of Good Hope. | Indian Ocean | Australia and S. Pacific. | Warm Pacific | N. Pacific and China Seas. |
| Ceramieæ | 44 | 17 | 15 | 15 | 8 | 5 | 2 | 9 | 4 | 5 |
| Cryptonemiaceæ | 29 | 10 | 10 | 6 | 7 | 3 | 2 | 3 | 1 | 0 |
| Gigartineæ | 22 | 5 | 8 | 4 | 2 | 3 | 2 | 2 | 3 | 1 |
| Spyridieæ | 6 | 0 | 2 | 2 | 3 | 1 | 3 | 2 | 1 | 1 |
| Areschougiæ | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Champieæ | 6 | 2 | 2 | 2 | 1 | 0 | 0 | 2 | 2 | 0 |
| Rhodymeniaceæ | 20 | 14 | 3 | 2 | 1 [?] | 0 | 0 | 3 | 1 [?] | 1 |
| Squamarieæ | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Porphyraceæ | 6 | 3 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 1 |
| Sphærococcoideæ | 67 | 47 | 8 | 7 | 10 | 2 | 6 | 5 | 2 | 2 |
| Helminthocladiaceæ | 40 | 22 | 2 | 5 | 10 | 1 [?] | 8 | 6 | 4 | 0 |
| Chætangieæ | 2 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| Gelidieæ | 13 | 8 | 2 | 2 | 2 | 4 | 4 | 3 | 2 | 2 |
| Hypneaceæ | 21 | 11 | 0 | 2 | 2 | 4 | 6 | 1 | 3 | 1 |
| Solierieæ | 12 | 6 | 2 | 1 | 1 | 1 | 3 | 2 | 1 | 1 [?] |
| Wrangelieæ | 2 | 1 | 1 | 1 | 1 | 0 | 0 | 1 [?] | 0 | 0 |
| Chondrieæ | 24 | 9 | 6 | 4 | 7 | 5 | 5 | 7 | 3 | 2 |
| Rhodomeleæ | 91 | 39 | 20 | 18 | 18 | 6 | 6 | 12 | 4 | 2 |
| Corallineæ | 37 | 9 | 8 | 13 | 9 | 8 | 6 | 10 | 4 | 3 |
| | 444 | 204 | 92 | 87 | 83 | 43 | 54 | 69 | 36 | 22 |

## II.

| PHÆOPHYCEÆ. | West Indies. | Recorded from West Indies only. | WEST INDIAN SPECIES COMMON TO | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | N. Atlantic. | Mediterranean. | Warm Atlantic. | S. Atlantic and Cape of Good Hope. | Indian Ocean | Australia and S. Pacific. | Warm Pacific | N. Pacific and China Seas. |
| Fucaceæ | 33 | 10 | 6 | 5 | 13 | 3 | 7 | 3 | 4 | 1 |
| Dictyotaceæ | 44 | 11 | 7 | 8 | 14 | 7 | 7 | 9 | 7 | 4 |
| Ectocarpaceæ | 13 | 11 | 2 | 1 | 1 | 1 | 0 | 1 | 0 | 0 |
| Sphacelariaceæ | 2 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| Chordariaceæ | 8 | 0 | 5 | 4 | 1 | 1 | 0 | 1 | 0 | 0 |
| Punctariaceæ | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Arthrocladiaceæ | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| Sporochnaceæ | 8 | 3 | 2 | 4 | 2 | 1 | 3 | 2 | 2 | 2 [?] |
| Ralfsiaceæ | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 112 | 36 | 24 | 23 | 33 | 13 | 19 | 17 | 14 | 7 |

## III.

| CHLOROPHYCEÆ. | West Indies. | Recorded from West Indies only. | WEST INDIAN SPECIES COMMON TO | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | N. Atlantic. | Mediterranean. | Warm Atlantic. | S. Atlantic and Cape of Good Hope. | Indian Ocean | Australia and S. Pacific. | Warm Pacific | N. Pacific and China Seas. |
| Siphoneæ .............. | 95 | 39 | 8 | 19 | 29 | 8 | 22 | 18 | 20 | 2 |
| Conferveæ .............. | 77 | 29 | 16 | 17 | 10 | 4 | 5 | 5 | 2 | 0 |
| Ulveæ .................... | 15 | 5 | 7 | 8 | 5 | 4 | 3 | 6 | 3 | 2 |
| | 187 | 73 | 31 | 44 | 44 | 16 | 30 | 29 | 25 | 4 |

## IV.

| | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| PROTOPHYCEÆ...... | 45 | 34 | 5 | 6 | 1 | 1 | 0 | 1 | 0 | 0 |

## V.

| TOTALS. | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Florideæ .............. | 444 | 204 | 92 | 87 | 83 | 43 | 54 | 69 | 36 | 22 |
| Phæophyceæ ........... | 112 | 36 | 24 | 23 | 33 | 13 | 19 | 17 | 14 | 7 |
| Chlorophyceæ ......... | 187 | 73 | 31 | 44 | 44 | 16 | 30 | 29 | 25 | 4 |
| Protophyceæ ........... | 45 | 34 | 5 | 6 | 1 | 1 | 0 | 1 | 0 | 0 |
| | 788 | 347 | 152 | 160 | 161 | 73 | 103 | 116 | 75 | 33 |

I venture to think that the conclusion is obvious enough, from the foregoing tables, that the West Indian Region is a natural one. At the beginning of the work the inclusion of Bermuda in the region seemed to rest on doubtful grounds, but on the whole, these doubts, such as they were, have been removed during its progress. The occurrence on that island of two species of *Fucus*, for example, *viz.*, *F. ceranoides* L. and *F. distichus* L., certainly makes one pause, but a consideration of the whole of the list containing many examples of peculiar West Indian forms outweighs this evidence of a northern flora—and we may safely regard Bermuda as no longer "vexed," but well established as the northern limit down the Gulf Stream of this region. The other difficulty in delimiting the frontier of the West Indian Region has been the wide question of how far it is worth while separating it from the warm Atlantic region. It will be seen that the latter exceeds by only one the total for the Mediterranean of West Indian forms common to the regions in question—but it must not be forgotten that the Mediterranean not only offers a long coast-line, but it has been far better explored for Algæ than the coast-lines of the warm Atlantic region. Compare our knowledge of the Algæ of the Adriatic or of the Bay of Naples with our poor records from Brazil or the West African coast! The proportion of warm Atlantic forms occurring in the West Indies (to put the case from the other point of view)—I mean the proportion to the whole known marine flora is far greater than the proportion of Mediterranean forms so occurring. While therefore maintaining the West Indian region for the present, I should offer no serious opposition to its being engulphed in the warm Atlantic region if it be considered desirable to deal with regions of larger area.

The total of species common to the Cape may cause some surprise as to its smallness compared with Australia. This, I take it, is to be accounted for by the two facts that Australia has been ascertained to have a very large and varied marine flora, and that this flora has been so thoroughly studied from the systematic point of view. From Australia and the S. Pacific, I should explain that I exclude North Australia. The material from Torres Straits, which is about all we know of it, shows a greater relationship with Indian Ocean and warm Pacific forms than with East, South, or West Australian forms. The smaller totals from warm Pacific and North Pacific are to be accounted for by the poverty of our knowledge of these regions.

The total from the Indian Ocean is at first sight most surprising of all—in its being smaller than the Australian total. I have included in this Indian Ocean region, the Red Sea, and islands, &c., as far south as Mauritius, and as far east as Singapore. Granted that the Australian marine flora is well known, it must also be urged that the Indian Ocean as thus delimited has been by no means neglected. Allowing that, of the two regions, Australia is the better known, even then the result is surprising when we consider the similarity of the physical conditions occurring in the Indian Ocean and West Indian regions—and the enormous extent of the Indian Ocean region, compared with the coast-lines of Eastern, Southern, and Western Australia, and the S. Pacific islands. If we trace the Gulf Stream and the Equatorial current to its source, we travel up-stream round the Cape of Good Hope, and arrive at the coast of Western Australia. Is this great current to be admitted as a factor in solving the problem? Against it one may hear urged that the Cape total is lower than the Australian, but against this objection is the further fact of the small coast-line of the Cape.

However this may be, the Indian Ocean region has, both relatively to Australia and relatively to its total flora, surprisingly little in common with the West Indies as regards *species*. If we take the *genera*, which are either confined to the tropics or are almost exclusively represented in the tropics, we shall find, speaking broadly, that the genera of marine Algæ are the same in the East Indies as in the West, while the species are in a very high proportion different. When we regard these regions shut in by continental areas, and not much less effectively by areas of low temperature in the ocean, there is a strong temptation to rush at once to a conclusion that the tropical genera of Algæ are thus proved to be of immense antiquity, while the species are comparatively recent. However convenient such a conclusion might be, it would be rash to assume its truth on this evidence alone. When these oceans have been more thoroughly explored, and their forms more critically studied, it will be time to debate the question. But the evidence is strong enough at present to warrant our briefly considering its position. Admitting the enormous antiquity, in a geological sense, of the continental areas—their "permanence," as one writer puts it—as beyond question an insuperable barrier to the mingling of tropical marine forms, we may yet ask, Does this hold good of the ocean temperatures? The changes and variations of climate in the northern and southern hemispheres are admitted by all to have been both far-reaching and of great duration. It is also generally admitted that an important agent in determining such variations of climate, or, at all events, a constant accompaniment of such, has been change of direction of the great ocean currents. Let us suppose in the past—a past by no means so remote as the age of continents—a more genial climate in the southern hemisphere, and we at once obtain conditions suitable for the migration and mingling of the marine forms of tropical oceans by way of the Cape of Good Hope. It will be seen that this reduces to (in geological sense) comparatively modern times the latest age during which continental areas formed no insuperable barrier between tropical seas. It may now be said that this argument tends to bring the age of the tropical *species* down to comparatively recent times. It may bear that interpretation to those who choose to make it, but I would emphatically point out that it by no means forces us to make it. I have dwelt at this length on this aspect of the question because it appears to me that we have here one of the most interesting points in the distribution of plants, and one on which further labour may be hopefully expended. I hope to follow up at an early date this West Indian Catalogue with one of the Marine Algæ of the Indian Ocean, towards which I have already amassed much material, and made numerous determinations.

Finally, to return to the West Indian Region proper, I would venture to point out that the 347 species recorded as peculiar to the West Indian marine algal flora, out of a total of 788 species composing the flora, is hardly a proportion that will stand. The advance of knowledge will doubtless lead to their distribution being extended, and it may be anticipated that this will be more the case than the discovery of new species within the region itself. Still it must be admitted that there are great portions of the region that have never been explored by the collector of Algæ, and outside the Islands we know hardly anything. The coast of the Gulf of Mexico has been ascertained to be barren, but the whole of the north coast of South America is absolutely a blank, but for a few species from La Guayra, and it may well repay examination.

Appended is a list of authorities geographically arranged:—

*Venezuela* (La Guayra).—*Liebman.* Quoted in Kützing's 'Species Algarum,' and in Harvey, Nereis Bor. Amer.

*Grenada.*—*Murray*, in Herb. Mus. Brit.

*Barbadoes.*—*Dickie*, in Linn. Soc. Journ. (Bot.), xiv.

*Martinique.*—*Montagne*, Plantes Cell. Nouv. Cent. III.: Ann. Sci. Nat., Ser. ii., Tom. xviii.

*Guadeloupe.*—*Mazé et Schramm*, 'Essai de Classification des Algues de la Guadeloupe.'

*St. Thomas.*—'*Challenger*' list in Linn. Soc. Journ. (Bot.), xiv.

*St. Thomas and other Danish West Indian Islands.*—*Hohenack*, 'Meeralgen.'

*St. Croix.*—*Miss Dix.* Quoted in Harvey, *loc. cit.*

*Jamaica.*—*Sir Hans Sloane*, in Herb. Mus. Brit. *Chitty*, in Herb. Mus. Brit.

*Cuba.*—*Ramon de la Sagra*, Hist. Nat. de Cuba (*Montagne*); Algæ Wrightianæ. *Farlow*, in 'American Naturalist' (Cuban Sea Weeds), vol. v. 1871.

*Vera Cruz.*—*Liebman.* Quoted as above.

*Yucatan.*—*Schott*, in Herb. Mus. Brit.

*Florida.*—*Harvey*, Nereis, Bor. Amer. *Melvill*, Journ. Bot. 1875. *Farlow, Anderson & Eaton*, Alg. Exsicc. Amer. Bor. See also Farlow's List of Algæ in United States Fish. Commission Report, 1873–74 and 1874–75 (published in 1876).

*Bahamas.*—*Ellis & Solander.* Also some material (not much) by various collectors in Herb. Mus. Brit.

*Bermuda.*—*Kemp*, 'Canadian Naturalist,' vol. ii. 1857. *Rein*, Bericht über d. Senckenberg. Gesellsch. 1872–73, p. 151. '*Challenger*' list in Linn. Soc. Journ. (Bot.), xiv. *Farlow, Anderson & Eaton*, Alg. Exsicc. Amer. Bor.

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## Addenda, &c.

Journ. Bot. 1888, p. 194, line 9 from top, after "proportion," add "of individuals."

Page 196, line 17, "Ipse," unidentified, has been recognised as Hohenacker.

Page 238, line 14 from bottom, between "Havana" and "*Melvill!*," insert "*R. de la Sagra.*"

Page 239, to "CYSTOCLONIUM," add "C. PURPURASCENS. Cuba, *R. de la Sagra.*"

Page 241, to "BANGIA," add "B. DISPERSA Mont. Martinique, *Belanger.*" To "PORPHYRA," add "P. VEXILLARIS Mont. Martinique, *Belanger.*" To "GRACILARIA," add "G. MULTIPARTITA. Havana, *R. de la Sagra.*"

Page 306, under "HYPNEA MUSCIFORMIS Lam.," before Jamaica, insert "Nevis, *Menzies*!" and after Jamaica add "*Wright*!" To "HYPNEA SPINELLA J. Ag.," add "Florida, *Hooper*! in Farlow, Anderson & Eaton, No. 145." To "H. SECUNDIRAMEA Mont.," add "St. Thomas, *Mertens*!"

Page 307, to "EUCHEUMA ISIFORME Ag.," add "Yucatan, *Schott*!"

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## THE REV. M. J. BERKELEY, M.A., F.R.S.

MILES JOSEPH BERKELEY, whose death on the 30th July was briefly recorded in the last number of this Journal, was born at Biggin, near Oundle, in the year 1803. He was educated at Rugby, and at Christ's College, Cambridge, where he took his degree in 1825. Having taken orders, his first appointment in the Church was a curacy at Margate, and, while there, his principal scientific occupation was zoological. His first contributions to science were some half-dozen memoirs in the 'Zoological Journal' and the 'Magazine of Natural History,' devoted to the Mollusca and the like.

His first botanical publication of any note is the 'Gleanings of British Algæ' (1833), an appendix to the 'Supplement to English Botany.' It was originally Berkeley's intention to publish the plates of the 'Gleanings' as a supplement to Greville's 'Scottish Cryptogamic Flora,' but in consequence of the discontinuance of that work, a fresh arrangement was made with Mr. Sowerby. The 'Gleanings' is not in any way a remarkable performance, and it may be interesting to note here that when Berkeley thirty years later published a 'Handbook of British Mosses,' the result was again of moderate excellence compared with his achievements in other directions, *viz.*, the study of Fungi and of plant pathology. On leaving Margate he obtained a living at King's Cliffe, Wansford, where he continued to reside until his removal to Sibbertoft, Market Harborough, in June, 1868: here he remained until his death.

Berkeley's first great work was the volume on Fungi in the 'English Flora,' published in 1836. When the state of mycology in this country at that time is considered, the difficulties to be overcome in the work may be imagined. The gathering of the material, the sifting of it, and the putting of the result into shape, represented much labour, and called for the highest excellence in judgment. Berkeley was equal to the task, and in the opinion of most mycologists he never surpassed his first great work on Fungi—nor have any who have come after him. The 'Notices of British Fungi' were begun in 1837, in the 'Magazine of Zoology and Botany' (the forerunner of the 'Annals and Magazine of Natural History'), and these appeared at intervals, the late Mr. Broome joining in the authorship in 1848.

During the progress of the 'Notices,' Berkeley produced a series of papers describing collections of Fungi from many quarters of the world. The Fungi collected during the voyage of the 'Beagle' by Mr. Darwin, the novelties of the Hookerian Herbarium and of the British Museum, the Philippine collections of Cuming, and many others may be cited. In short, he was the standing authority to whom every one appealed on mycological matters, and whose office it seemed to be to describe the Fungi of every collector of note during a period of unequalled activity in botanical exploration by travellers from this country.

Between 1844 and 1856 he issued his well known 'Decades of Fungi.' His correspondence with Mr. Broome appears to have begun in 1841, the date of the first letter from Berkeley in the long series bequeathed by Mr. Broome to the British Museum. The letter deals mainly with Mr. Broome's enquiries about *Conferva glomerata*, and a mould which Berkeley tells him is probably *Gonatobotrys simplex* Corda, of which a sketch is given. In the very next letter Berkeley asks Broome about truffles, and henceforth Broome takes them up; and much of the immediately ensuing correspondence relates to his "finds." As is well known, *Tuberaceæ* remained Broome's favourite Fungi throughout life. The books and scientific papers of Berkeley have sufficed to place him far above his fellow-mycologists in this country, but a casual perusal of his correspondence with Broome impresses one somehow even more. There is hardly a letter in these volumes of them which does not speak of observations, many of them as important for their time as the bulk of the results often set forth nowadays with all the circumstance of costly illustrations in the form of scientific papers. His industry was unwearied in the study of Fungi, and at the same time he had his clerical duties to perform; for a time, too, those of a schoolmaster in addition, and always more or less of work for publishers and others, to add to his income.

Thirty years ago, and more, he began to suffer much from a variety of minor complaints, and while he held the posts of Examiner at London University and of Scientific Adviser to the Horticultural Society it was often with a struggle that he succeeded in keeping his engagements. But, with it all, there is never a word of his courage failing, and no sign of slackening of his marvellous activity in research. Nothing could give one a more happy idea of Berkeley's character than some of these letters telling of his son Emeric's going to India, and his rejoicing over the arrival of specimens from him, notably *Emericella*, of which he gives a drawing in his letter to Broome—a type puzzling still, even after Mr. Massee's minute examination of it. Mr. Broome was joint author with Berkeley of the 'Notices of British Fungi' after 1848, and of memoirs on Ceylon Fungi and on Australian Fungi.

It was about 1845 (about the time of the potato-disease) that Berkeley's writings begin to treat more particularly of the morphological aspect of his subject. He was always aware of the importance of this, but the awakening in him (as in continental writers) began about this period. He henceforth busied himself much with plant-diseases, both those caused by Fungi and others—non-parasitic. His papers on Vegetable Pathology in the 'Gardeners' Chronicle' are among his best work. He still kept up his labours in Systematic Mycology, but morphological work had fascinated him as well. Under other circumstances this would have undoubtedly borne even more conspicuous fruit. As it was, Berkeley saw the necessity of employing the methods of research which were becoming so successful in the hands of the Tulasnes, De Bary, and others. Broome, who appeared to read everything in the way of mycological literature, frequently asked his opinion on controversies of the day, and Berkeley, to judge by his replies, was generally cautious enough in his judgments. One notable instance is a letter about De Bary's researches on the Mycetozoa. Cautious, however, as he was, the example of Berkeley was an admirable one to mycologists, in this country, who in those days had nothing but heaped-up abuse for the great investigators on the continent who were founding anew the study of Fungi. Of these great men Berkeley speaks with unfailing respect, even when he differs from their opinion and distrusts their results. Almost the only contemptuous words in the whole series of Berkeley's letters are those he applies to their detractors in this country, of whose slipshod methods and intolerable conceit he used the most unsparing language.

The 'Introduction to Cryptogamic Botany' appeared in 1857, and this perhaps was his greatest work from the point of view of public utility. It did more to spread a knowledge of Cryptogamic Botany than is commonly recognised. It was a work of great originality, and of very remarkable insight. Its influence may be best measured by its effect on our native literature during succeeding years. 'The Outlines of British Fungology' followed in 1860, and supplied mycologists with numerous figures of Fungi in a handy form. From this time onward the fruits of Berkeley's labour continued to appear in the form of numerous papers scattered in many journals. Honours came to him. He received the gold medal of the Royal Society, a reward which he valued very highly, in 1863. It was not till 1879 that he was elected a Fellow. In that year he presented his herbarium of Fungi to Kew, and not long afterwards his books. After that date his scientific activity slowly slackened, and during recent years he lived a very quiet and retired life. Various portraits have been published, including a very good one by Mr. Worthington Smith in the 'Gardeners' Chronicle,' which, as so often happens to good portraits, the subject of it did not altogether like, as he confesses to Mr. Broome. What is more to the point, however, his friends, the best judges, all like it. An oil portrait of him by Peel was painted in 1878, and presented to the Linnean Society, but it is not attractive.

As for Berkeley's position in the scientific world, it is undoubtedly the leading one among the mycologists of this country. It is unjust to suppose, as so many have done, that he held a premier position in Cryptogamic Botany all round. Harvey's position as a phycologist was as distinguished as Berkeley's in Mycology. Greville's work seems to stand the shock of the most minute criticism and re-investigation better far than the work of any of his contemporaries in Cryptogamic Botany—he was the Robert Brown of the study. Wilson in Bryology stood as high above his fellows as Berkeley did in his own work. Most assuredly he himself desired no higher honour than to remain in the memory of botanists along with Greville, Harvey, and Wilson.

G. M.

# BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.

By James Britten, F.L.S., and G. S. Boulger, F.L.S.

(Continued from p. 275.)

**Lister, Martin** (1638–1712): b. Radcliffe, Bucks., 1638; d. London, 2nd Feb. 1712; bur. at Clapham Church. M.A., Camb., 1662. M.D., Oxon, 1683. F.R.S. F.R.C.P., 1687. Physician to Queen Anne. Settled at York, 1670; in London, 1684. Correspondent of Ray (Corresp. 111–125). Munk, i. 442; Lankester, 'Memorials of Ray,' 17. *Listera* Br.

**Litton, Samuel** (d. 1847). M.A., Dublin, 1804. M.D. 21 years Prof. to Royal Dublin Society. Bot. Mag. 4723. *Littonia modesta* Hook., "after his modest merits."

**Livingstone, John** (fl. 1800–1824). 'On Chinese Horticulture,' Trans. Hort. Soc. iii., iv., v. R. S. C. iv. 61.

**Livingstone, John S.** (fl. 1860). F.R.Phys.Soc.Edinb. 'Effects of Chloroform, &c., on Plants,' Trans. Bot. Soc. Edinb. vi. 325, 380. R. S. C. iv. 60.

**Lloyd (Lhwyd), Edward** (1670–1709): b. Kidwell, Caermarthen, 1670; d. Oxford, July, 1709. Student, Jesus Coll., Oxon., 1687. Keeper of Ashmolean Museum, 1690. Contributed list of Welsh plants to Gibson's 'Camden.' Sent plants to Petiver, Sloane MSS. Pult. ii. 110–116; Ray Corresp. 432, and numerous letters; Rich. Corr. 12, 62, &c.; Wood, Athen. Oxon. ii. 1094. *Lloydia* Salisb.

**Lloyd, George N.** (d. 1843): d. Thebes, 29th Oct. 1843, ? Pritz. 'Botanical Terminology,' 1826. 'Fasciculus Gramineæ Britannicæ' (dried specimens), Edinb., 1840. Issued fasciculi of Scottish plants; Eng. Bot. 2689. Pritz. 194; Jacks. 9.

**Lloyd, John** (1791 ?–1870): b. Herefordshire, 1791 ?; d. 24th Jan. 1870. Contributed to Phytol. iv. and n. s. i.–vi. Gard. Chron. 1870, i. 180; R. S. C. iv. 64.

**Lobb, Thomas** (fl. 1847). Collector for Veitch in India and Malaya. List of his plants (by Planchon) in Journ. Bot. 1847–8. Journ. Bot. 1847, 145; Cott. Gard. xiii. 274. *Lobbia* Planch.

**Lobb, William** (1809–1863): b. East Cornwall, 1809; d. San Francisco, 1863; bur. Lone Mt. Cemetery. Brother of preceding. Collector for Veitch in S. America, 1840–8, and in California, 1849–1857. Veitch, 'Manual of the Coniferæ,' p. 258. *Lobbia* Planch.

**Lobel, Matthias de** (1538–1616): b. Lille, Flanders, 1538; d. Highgate, 1616. Botanographer to James I. Pupil of Rondeletius at Montpelier. 'Adversaria Nova' [with Peter Pena], London, 1570–1. 'Observationes,' Antwerp, 1576. 'Illustrationes,' ed. W. How, 1655. Superintendent of Lord Zouch's garden, Hackney. Introduced *Ephedra distachya*, 1570; *Salvia grandiflora*, 1616. Pult. i. 96; Rees; Pritz. 194; Jacks. 574; Fl. Midd. 369. Engr. portr. fol. vign. by Francis Dellarame, 1615. Copy at Kew. *Lobelia* L.

**Lockhart, David** (d. 1846): d. Trinidad, 1846. Kew gardener. Assistant to Christian Smith on Congo Expedition, 1816: sole survivor of the staff. Lasègue, 444. Plants from Bahia in Hb. Mus. Brit. Journ. Bot. 1847, 40; R. S. C. iv. 68; Gard. Chron. 1885, xxiv. p. 236. *Lockhartia* Hook.

**Lockhead, William** (d. 1815): d. St. Vincent Bot. Garden, 22nd March, 1815; bur. in the garden. Succeeded Anderson as Curator, July, 1811. Drawings in Bot. Dept., Brit. Mus. R. S. C. iv. 67; Guilding, 'Account of St. Vincent Bot. Gard.,' 1825.

**Loddiges, Conrad** (d. 1820): b. Germany; d. Hackney, 1820. Nurseryman, Hackney, from 1771? Introduced plants from Michaux, Bartram: Loudon, 'Arboretum,' 84. 'Botanical Cabinet,' 1817. Pritz. 194; Jacks. 574; Bot. Mag. t. 965. *Loddigesia* Sims.

**Loddiges, George** (1784–1846): b. Hackney, 12th March, 1784; d. Hackney, 5th June, 1846. F.L.S., 1821. Son of preceding. 'Botanical Cabinet,' 1817–1834, with many of the plates drawn by himself. Proc. Linn. Soc. i. 334.

**Loftus, William Kennett** (c. 1821–1858): b. 1821?; d. on board 'Tyburnia,' returning from India, November, 1858. F.G.S. On Turco-Persian Frontier Commission, 1849–1852. Conductor of Assyrian Excavation Expedition, 1853–1855. On Indian Geological Survey from 1855. Collected in Assyria, Persia, &c. Plants in Brit. Mus. and Herb. Kew. Proc. Roy. Geogr. Soc. iii. (1858–59), 259.

**Logan, James** (1674–1751): b. Lurgan, Ireland, 1674; d. Stanton, Pennsylvania, 31st Oct. 1751. Went to America with Penn, 1699. Secretary of Pennsylvania, 1701; Governor, 1736. 'Experimenta . . . . de plantarum generatione,' Leyden, 1739; in English, London, 1747. Pult. ii. 277; Pritz. 195; Jacks. 96; 'Memorials of Bartram,' 307. *Logania* Br.

**London, George** (d. 1713). Apprentice to Rose. Gardener to Bishop Compton, William and Mary, and Anne. In partnership with Henry Wise at Brompton Park Nursery, 1694–1701. Mus. Pet. 45; Johnson, 123; Felton, 35.

**Long, Henry Lawes** (fl. 1839). 'Enquiry concerning *Quercus* and *Fagus* of the ancients,' Gard. Mag. xv. 1838, 9. Pritz. ed. i. 172.

**Long, J.** (fl. 1857–1859). 'Indigenous Plants of Bengal,' Ind. Agric. Soc. Journ. 1857–9. R. S. C. iv. 78.

**Longmire, J. B.** (fl. 1814–1826). 'Plants of St. Petersburg,' Thomson, Ann. Phil. 1823. R. S. C. iv. 80.

**Lord, Job** (fl. 1704), Collected in Carolina. Carolina plants, Herb. Sloane, 268, 284, 285.

**Loudon, Jane,** *née* **Webb** (1800 or 1802–1858): b. Birmingham, 1800 or 1802; d. Bayswater, 13th July, 1858; m. J. C. Loudon (the following), 1830. 'Botany for Ladies,' 1842. 'British Wild Flowers,' 1845. Pritz. 194; Jacks. 575; Cott. Gard. xx. 248, 255.

**Loudon, John Claudius** (1783–1843): b. Cambuslang, Lanark, 8th April, 1783; d. Bayswater, 14th Dec. 1843. F.L.S., 1806. Travelled in Northern Europe, 1813–15; in Italy, 1819. Edited 'Gardener's Magazine' from 1826; Mag. Nat. Hist. from 1828; 'Encyclop. of Plants,' 1829; 'Hortus Lignosus Londinensis,' 1838; 'Arboretum Britannicum,' 1838; 'Hortus Britannicus,' 1850. Pritz. 196; Jacks. 575; Lasègue, 537; Proc. Linn. Soc. i. 204; Gard. Chron. 1843, 7; 1845, 754; Cott. Gard. v. 143; xx. 255; Athenæum, 1843, 1112. Oil portr. by Linnell at Linn. Soc. Portr. at Kew. *Loudonia* Lindl.

**Lovell, George** (fl. 1849). Gardener. 'Observations on wood,' and 'On . . , forest-trees,' Journ. Hort. Soc. iv. 1849. R. S. C. iv. 92.

**Lovell, Robert** (d. 1690): b. Warwickshire; d. Coventry, 1690. Student, Christ Church, Oxon. Practised Medicine. 'Παμβοτανολογια, Enchiridion Botanicum, or a complete Herballe,' 1659; ed. 2, 1665. Pritz. 197; Jacks. 32; Wood's Fasti.; Watt, Bibl. Brit.; F. L. Colvile, 'Worthies of Warwickshire.'

**Lowe, Rev. Richard Thomas** (1802–1874): b. 4th Dec. 1802; drowned, Bay of Biscay, April, 1874. B.A., Camb., 1825. M.A., 1831. M.A., Oxon, 1843. English Chaplain in Madeira, 1832–1852. Rector of Lea, Lincolnsh., 1852. 'Primitiæ . . . Floræ Maderæ,' 1830. 'Manual Flora of Madeira,' 1857–1872. Pritz. 197; Jacks. 353; Journ. Bot. 1874, 287; R. S. C. iv. 98; viii. 267. *Lowea* Lindl. = *Hulthemia.*

**Lowther, W. H.** (fl. 1854–1871). Capt. Bengal Army. 'Productions of Kashmere'; 'Notes on Flora of Bourbon'; 'Notes on Flora of S. Africa,' Ind. Agric. Soc. Journ. 1854–1863. R. S. C. iv. 103.

**Lunan, John** (fl. 1814). 'Hortus Jamaicensis,' 1814. Pritz. 198. *Lunania* Hook.

**Lush, Charles** (1796 ?–1845): b. 1796 ?; d. Hyderabad, 4th July, 1849. Lect. Bot. St. Thomas' Hospital, 1825. M.D. Of Bombay Medical Staff. F.L.S., 1820. 'Acacia,' Linn. Trans. xvii. 1841, 217. 'Madia sativa,' Ann. Nat. Hist. vii. 1841, 446. Proc. Linn. Soc. i. 302; R. S. C. iv. 131.

**Luxford, George** (1807–1854): b. Sutton, Surrey, 7th April, 1807; d. Walworth, Surrey, 12th June, 1854. Printer. Lect.

Bot. St. Thomas' Hospital, 1846. A.L.S., 1836. F.B.S. Edinb. Edited 'Phytol.,' 1841. Contributed to Mag. Nat. Hist. 'Flora of Reigate,' 1838. Pritz. 198; Jacks. 575; R. S. C. iv. 136; Proc. Linn. Soc. ii. 426.

**Lyall, Robert** (fl. 1809–1831). M.D. F.L.S., 1824. Of Edinburgh and London. Resident at Antananarivo. Papers on irritability of plants, Nicholson's Journ. xxiv.–xxviii. 1809–1811. Plants at Kew. Lasègue, 557; R. S. C. iv. 137.

**Lyell, Charles** (1767–1849): b. Kinnordy, Forfarsh., 7th March, 1767; d. Kinnordy, 8th Nov. 1849. M.A., St. Andrew's and Cambridge. F.L.S., 1813. Contrib. lichens to Eng. Bot. 1876, &c. Gard. Chron. 1849, 727; Proc. Linn. Soc. ii. 87; Proc. Geol. Soc. 1876, 53. Portr. at Kew. *Opegrapha Lyelli. Lyellia* R. Brown.

**Lyle, Thomas** (d. 1859): d. Glasgow, 20th April, 1859. M.D. Practised in Glasgow. Muscologist. Correspondent of Wilson. Had a herbarium. Mosses in Wilson's coll. in Brit. Mus.

**Lynam, James** (1812–1885): b. Ballybrummel, Co. Carlow, 1812; d. Raheen, Co. Galway, Oct. 1885. C.E. Hon. Corr. Sec. Bot. Soc. London, 1852. Found *Sisyrinchium anceps* near Woodford, Co. Galway, 1845. 'The Climates of the Earth' (Bot. chart), 1857.

**Lyon, George Jasper** (1816–c. 1862): b. 31st Jan. 1816; d. c. 1862. Of Glasgow. F.B.S. Edinb., 1837. Moss Herbarium and drawings of Mosses and *Jungermanniæ* in Bot. Dept., Brit. Mus. Correspondent of Wilson.

**Lynch, Thomas Q.** (fl. 1849). Collected in N. Persia, 1849. Plants in Brit. Mus.

**Lyon, John** (d. 1818?): b. Gillogie, Forfarsh.?; d. in the mountains, North America, 1818? At Philadelphia in 1802. Returned with 14 new spp. in 1806. Went to Carolina, Georgia, and Florida, returning 1812. Journ. Bot. 1842, 11. *Lyonia* Nuttall.

**Lyon, P.** (fl. 1816). Of Edinburgh. 'Treatise on . . . . Trees,' 1816. Pritz. 199; Jacks. 206.

**Lyons, Israel** (1739–1775): b. Cambridge, 1739; d. London, 1775. Astronomer. Taken to Oxford to lecture, by Banks, in 1760; Dict. Nat. Biog. iii. 129. First gathered *Phleum Bœhmeri*, Eng. Bot. 459. Pritz. 199; Jacks. 249; Gorham, 'Memoirs of Martyn,' 122. *Lyonsia* Br.

**Lyons, John C.** (fl. 1845). Of Ladiston, Ireland. 'Orchidaceous Plants,' 1845. Pritz. 199; Jacks. 576.

**Lyte, Henry** (1529–1607): b. Lytes Cary, Somerset, 1529; d. same place, 1607; bur. Charlton Mackerell Church. 'A niewe Herball,' 1578, translated from Dodoens. MSS. in Archives of Univ. Oxford. Pult. i. 88; Pritz. 88; Jacks. 26; Wood, Athen. Oxon., ed. Bliss, ii. 22; Willm. George, 'Lytes Cary Manor House,' 1879.

**M'Alla, or McCalla, William** (c. 1814–1849): b. Ireland, c. 1814; d. Ireland, May, 1849. Algologist and marine zoologist. A.B.S. Edinb. Distinguished *Erica Mackaiana*. Communicated

Algæ to Harvey. 'Algæ Hibernicæ,' Dublin, 1845, 4to (specimens). Collected in New Zealand, Journ. Bot. 1842, 71. Phyt. ii. 742; Harvey, Phycol. Brit. t. 293. *Cladophora Macallana* Harv.

**M'Clelland, John** (fl. 1835–1865). Surgeon, Bengal Service. Zoologist. F.L.S., 1841. F.B.S.E., 1856. Edited W. Griffith's posthumous works, 1847–1850. Pritz. 199; Jacks. 384; R. S. C. iv. 149.

**Macculloch, John** (1773–1835): b. Guernsey, 6th Oct. 1773; d. Cornwall, 21st Aug. 1835. M.D., Edinb., 1791. F.L.S., 1801. Geologist. 'Naturalization of Plants,' Quart. Journ. Sci. 1826, 1829. R. S. C. iv. 153.

**M'Donald, Alexander** (pseud.). *See* Dickson, R. W.

**Macdonald, George** (fl. 1853). Of Scotland. 'Botanist's Word-book' [with James Allan], 1853. Pritz. 199; Jacks. 9.

**Macdonald.** *See* Smith, Mrs.

**Macfadyen, James** (1800–1850): b. Glasgow, 1800: d. Jamaica, 1850. M.D., Glasgow, 1821–22. F.L.S., 1838. Twelve years in Antilles. Established Jamaica Bot. Gard. Plants at Kew. 'Flora of Jamaica,' 1837. 'Nelumbium jamaicense,' 1847. Pritz. 199; Jacks. 576; R. S. C. iv. 157; Proc. Linn. Soc. ii. 135. *Macfadyenia* A. DC.

**Macfarlan, A. J.** (d. 1868 or 1869). Of Edinburgh. M.D. Curator, Bot. Soc. Edinb. 'Nectary of Ranunculus,' Trans. Bot. Soc. Edinb. v. 169. R. S. C. iv. 157.

**MacGarroch, James Burgess** (d. before 1809). Of Kirkmichael, Dumfries. Son of Rev. Dr. Burgess (q. v.). Contributed Lichens to Eng. Bot. (tt. 1246, 2050, 2439).

**MacGibbon, J.** (fl. 1858). 'Cat. Bot. Gard., Cape Town,' 1858. Pritz. 200; Jacks. 448.

**MacGillivray, John** (fl. 1842–1852). Son of the following. Naturalist to H.M.S. 'Fly,' 'Rattlesnake,' and 'Herald,' 1842–1850. 'Narrative of the Voyage of H.M.S. 'Rattlesnake,'' 1852. Pl. in Herb. Mus. Brit. and Herb. Kew. Fl. Tasmania, cxvii.

**MacGillivray, William** (1796–1852): b. 1796; d. Aberdeen, 5th Sept. 1852. A.M., Aberdeen, 1815. LL.D. F.R.S., Ed. Prof. Bot., Aberdeen, 1841. Author of condensed issue of Withering's 'Arrangement' (1830). Translated Richard's 'Elemens de Botanique,' 1831. 'Nat. Hist. of Deeside' (posthumous), 1855. Pritz. 200; Jacks. 576; R. S. C. iv. 159; viii. 292.

**Macgrigor, Sir James** (fl. 1799–1829). M.D. F.R.S. K.T.S. Collected in Jersey, 1799; and in Mauritius. Pres. Med.-Bot. Soc., 1828. Mauritius plants in Herb. Mus. Brit. Trans. Med.-Bot. Soc. 1829, Appx. p. 11.

**McIntosh, Charles** (1794–1864): b. Abercaimy, Perthsh., Aug. 1794; d. Murray-field, 9th Jan. 1864. A.L.S., 1854. Gardener at Claremont and Dalkeith. 'Flora and Pomona,' 1829; 'Practical Gardener.' Proc. Linn. Soc. 1863–64, xlii.

**MacIntyre, Æneas** (fl. 1825–1836). LL.D. F.L.S., 1825. Memb. Bot. Soc. Lond., 1836. 'Notice of Plants on Warley Common, Essex,' Proc. Bot. Soc. Lond. 1836.

**McIvor, William Graham** (d. 1876): b. Dollar; d. Ootacamund, India, 8th June, 1876. Kew gardener. Superintendent, Bot. Gard., Ootacamund, 1848. 'Hepaticæ Britannicæ' (specimens), 1847. Introduced Cinchona into India. 'Notes on the . . . . cultivation of . . . Cinchonas,' 1863. Pritz. 200; Jacks. 576; R. S. C. iv. 161; Eng. Bot. 2948; Gard. Chron. 1876, ii. 150; Journ. Bot. 1876, 224; Trans. Bot. Soc. Edinb. xiii. 11.

(To be continued.)

## SHORT NOTES.

Foliage of the Raspberry and Blackberry. — There is a peculiarity in the formation of the compound leaves of *Rubus*, which, as far as I know, has escaped the notice of systematists. In the Raspberry the leaves vary from one to five leaflets, and in tracing the formation it will be found that the first pair are separated off from the single (terminal) leaflet by severance of portions from the base; then the next pair are formed in the same way, that is, again from the terminal leaflet, so that the two pairs arise successively in a basifugal manner. The resulting leaf is pinnate. This process is of course revealed by the presence of intermediate stages, which are very common. Thus the leaflets are at first more or less deeply lobed, or one leaflet only may be isolated, the opposite one remaining as part of the terminal, &c. In the Blackberry, the primary pair are first of all separated from the terminal, as in the Raspberry; but the second pair are derived from this primary pair, the two pairs being consequently basipetal. Moreover, they remain close together, so that it renders the leaf palmate, the terminal leaflet only being somewhat distant. In *R. fruticosus* subsp. *corylifolius* Sm. there are sometimes seven leaflets, and when this is the case, after forming the first two pairs as described, the third pair is formed by reverting again to the terminal. It is therefore at first basipetal and then basifugal.—George Henslow.

Lentinus scleroticola Murray.—In 'Grevillea' for September, p. 19, under the impressive heading "Memorabilia," there appears the following paragraph, for which it may be presumed the Editor is responsible:—"*Lentinus cyathus* B. & Br.—The species called *Lentinus scleroticola* Murray, Trans. Linn. Soc. ii., Part ii., is identical with *Lentinus cyathus* B. & Br., as determined by authentic specimens of both." From this the reader will be justified in believing that Mr. Cooke has examined an "authentic specimen" of *L. scleroticola*. There is only one "authentic specimen" of this species, which is in the British Museum, and Mr. Cooke has never examined it. The reader will naturally suppose also that I have not examined *L. cyathus*. If he will turn to p. 231 of my memoir (*loc. cit.*), he will find that I distinguish between the species after a comparison of Mr. Broome's type-specimen of *L. cyathus* Berk. & Broome with *L. scleroticola*. The late Mr. Broome agreed with me as to the validity of *L. scleroticola*, and I know of no other mycologist who has examined the authentic specimen with care.—George Murray.

Arenaria gothica Fries in Britain. — This plant was discovered at Ribblehead, in West Yorkshire, on June 12th last, by Mr. Lister Rotheray, a Skipton botanist, and was again collected there on September 11th by Mr. F. Arnold Lees. The identification was made by Mr. Arthur Bennett, F.L.S., of Croydon, on careful comparison with Gothland specimens sent to him by Prof. Nilsson. I hope to give a fuller report next month.—William Whitwell.

A Correction. — With reference to Mr. Arthur Bennett's note on the original publication of *Potamogeton angustifolius* in the September number of this Journal (p. 263), I venture to trouble you with a slight rectification. As it stands, the note reads as if the volume had escaped the notice of both Pritzel and myself, whereas it was intentionally omitted from the 'Guide,' because, having inspected it when I went through the Kew library, and finding it written wholly in Czech, and given in its right place in Pritzel, I did not think it necessary to insert it in my work. It will be found in the second edition of the 'Thesaurus,' at p. 22, No. 631, but in the heading is erroneously ascribed to Berchtold alone, although the name of the elder Presl is duly cited in the transcription of the title-page. Ernest Berg, in his 'Additamenta,' says of it:—"Opus a 1821–1830, 40 fasc. editum est."—B. Daydon Jackson.

Lilium Martagon naturalised in Worcestershire. — I found, this summer, several plants referable to this species in a copse, growing by the side of "Dick Brook," near Stourport, in Worcestershire. They were in flower, and of large size. Probably they are naturalised specimens; none are to be found in any cottager's garden in the district, and the nearest garden is a mile or more away. *Vinca minor* is a common plant at Lincombe Bay, Stourport, where it certainly appears to be indigenous.—J. W. Williams.

Carex lævigata Sm., var.—Mr. Beckwith sent me in July, from Salop, some specimens of a *Carex* that on first opening I thought might be *punctata*; the first-sight look and habit is remarkably like that species, but I found on examination that it was a very pretty form of *lævigata*, for which I propose the varietal name of *gracilis*: characterised by leaves much narrower than type, short female spikes, with patent fruit, and glumes of a pale yellowish brown; fruit smaller, but relatively more swollen, with the neck of the fruit shorter; male spikes much longer than all the female ones.—Arthur Bennett.

Atriplex tatarica L. (auct.). — In Sept. 1882, I gathered a large series of the various forms of *Atriplex* to be found on the coast between Brighton and Portslade, Sussex. Having last August gathered another series of forms, with Messrs. Hanbury and Reeves, near Littlehampton, Sussex, I have lately looked through those of 1882 to see roughly what likeness or similarity the two gatherings might have. I find that near Portslade I gathered *A. tatarica* sparingly. I have little doubt that it can only be considered an introduction, probably with grain? I do not remember to have seen this recorded as an alien in Britain. It occurs in Germany, Austria, the States to the east of Austria, Russia; and in Scandinavia only in a sea-shore form (*A. patula* L., a. *hololepis* Ledeb. Fl. Ross. vol. iii., p. 726). It is thus more an eastern form than a western one.—Arthur Bennett.

Plants of North Bucks.—About Fenny Stratford, while waiting for a train, I noticed *Hypericum dubium* Leers,* *Festuca Myurus* L., *Myriophyllum spicatum* L.,* *Chenopodium hybridum* L.,* *Rubus corylifolius* Sm.,* *Rosa senticosa* Ach., *Rubus rhamnifolius* W. & N.* (or rather the British form which we have been accustomed to name as this), *R. leucostachys* Sm.,* *Jasione montana* L., *Hieracium umbellatum* L., *Festuca rubra* L.,* *Arctium majus* Schkr., *Filago minima* L., *Teucrium Scorodonia* L., *Atriplex deltoidea* Bab.,* *A. erectus* Huds.,* and *Ornithopus perpusillus* L. My walk extended to Brickhill Wood. The asterisks denote what appear to be new county records; the others are personal vouchers.—G. C. Druce.

Euphorbia Esula in Northamptonshire. — It may be of interest to note what seems to be an unrecorded locality for *Euphorbia Esula.* In 1887 I found it growing freely on the left bank of the Nen, near Aldwinckle, Northamptonshire, and have observed it again this year. It is evidently not a recent escape, and seems to be quite established. There are no gardens near.—J. Sargeaunt.

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## *NOTICES OF BOOKS.*

*The Flora of Switzerland, for the use of Tourists and Field-botanists.* By A. Gremli. Translated from the fifth [German] edition by Leonard W. Paitson. London: Nutt. 8vo, pp. xxiv. 454. Price 7s. 6d.

English-speaking botanists have reason to be thankful to Mr. Paitson for rendering accessible to them a work which has already been translated into French, and of which four German editions, extending to 6000 copies, have been disposed of. This fact alone shows the estimation in which the book is held, and we shall be surprised if its sale in its English form does not show,—if it has not already shown,—the approval with which it has been hailed by English botanists, many of whom made it their companion during the holiday-time of the summer just ended. It is perhaps somewhat surprising that no English translation has previously been issued, seeing that the book first appeared in 1874. If, as is possible, the favourable reception which, *faute de mieux*, was extended to Mr. A. W. Bennett's translation of Dalla-Torre's 'Tourists' Guide,' noticed in this Journal for 1886 (p. 154), has encouraged the publishers to bring out the present volume, that irritating little work has a claim upon our gratitude to which its intrinsic merits do not entitle it.

The plan of the work is very simple and sensible. After a brief introduction, explaining the use of the tables, the meaning of abbreviations, &c., we have a "Tabular view of the Natural Families," followed by a "Table for determining the genus," this latter being arranged on the Linnean system. Then follows the descriptive portion of the book, or "Tables for determining the species," occupying about 400 of the 445 pages comprising the volume. This is arranged on the analytical method, with indications of frequency, geographical distribution, &c., all of them of value in the practical use of the book.

It is not only to the tourist, however, that this Flora will be useful. In the careful enumeration and description of critical species,—notably of the genera *Salix*, *Euphrasia*, *Centaurea*, *Carduus*, and *Hieracium*, the last occupying 30 pages,—there is material well worthy the attention of all students; and the work throughout bears traces of original work. The translator has also embodied in it the 'Neue Beiträge' published in 1887, so that the English edition is in advance of the last German issue, which is dated 1885.

The value of this Flora is never more fully realised than when it is used in the field side by side with Dalla-Torre's little book. From this latter, "the commonest and most ubiquitous plants are excluded," their names only being given, and that in an appendix. Many of these are quite new to the British botanist, who naturally expects to find them described, and not unnaturally attempts to fit the plants he comes across with the descriptions in Dalla-Torre. It is only after some days' experience and much impatience, perhaps somewhat forcibly expressed, that he begins to understand that, in all probability, the plants he wants to determine appear only as *nomina nuda* at the end of the book, which he forthwith abandons as useless. Happy is he if a fellow-traveller should have Gremli's volume in his pocket! His troubles then disappear, and he resolves, next time he comes to Switzerland, to bring Gremli with him and leave Dalla-Torre on the shelf,—especially when he finds (to take one example only) that Gremli gives 86 species of *Labiatæ*, while Dalla Torre selects only 10 for description.

A new edition of Gremli's Flora will so soon be called for that a few suggestions may be useful. The whole external get-up is at present so exactly like the well-known 'Bædekers' that it is quite easy to pick up one in a hurry in mistake for the other; this might be avoided by binding the Flora in blue. It might be well, too, to recognise Mr. Paitson's excellent work by placing his name on the side of the book in place of the "D. Nutt," which now stands there: the publisher has done his part well, but the placing his name on the back of the volume seems sufficient recognition of his share in the transaction. An edition on thin paper would be a boon to those who, not unreasonably, desire to be weighted with as few *impedimenta* as possible: in this point and this alone the English Dalla-Torre has an advantage. And the proofs need more careful reading. "Versicaria," "Teesdalea," "Thalaspi," "Neslea," occur in *Cruciferæ* alone, in two different parts of the book; then we have "Cheledonium," "Gypsophyla" and others. The

"English names," as too often happens, have no claim to that title, and there is some inconsistency in their formation,—some, such as "Heliosperm," "Helminth," "Trigonel," and the like, being constructed on the Benthamian principle; others, more wisely, being unaltered from the Latin. These are, however, small matters; and it is the strongest testimony to the value of the book, that it is only in small matters that there is room for criticism.

James Britten.

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*The Best Forage Plants fully described and figured.* By Dr. F. G. Stebler and Dr. C. Schröter. Translated by A. N. McAlpine, B.Sc., Lond. London: Nutt. 1889. Pp. 171, tt. 30. 12s. 6d.

This work was prepared by its authors for the agriculturists of Switzerland. Dr. Stebler brought to his part of the work the extensive practical knowledge he had acquired as Director of the Seed Control-station at Zurich, while Prof. Schröter efficiently prepared these systematic descriptions and supervised the admirable plates which accompany the work. Never before have pasture-plants been so accurately illustrated, and with so much detail. For scientific students they leave nothing to be desired; but we fear the numerous directions, valuable to the student, may be rather confusing to the agriculturist. Perhaps too little attention has been paid to the roots. Of grasses that are of equal importance for quantity of yield and feeding value, the deep-rooting species are to be preferred, not only because they secure a greater extent of feeding ground, but also because they can resist the summer drought, and continue to supply food for stock when their more shallow-rooted neighbours are burnt up. The roots in the figures of Cock's-foot and Fescue are perhaps fitting terminations to the stems, but they are misleading as representations of the organs of these plants.

Dr. Stebler has brought together a vast amount of information as to the climate, soil, manure, yield and nutritive value of the various plants he treats of; and he has given from his own investigations much useful information as to the seeds, their purity, growth, quantity to be sown, &c. We notice that in distinguishing between the seeds of Rye-grass and Meadow Fescue, he somewhat imperfectly describes the stalk,—the most striking character,—and gives an incorrect illustration of it, which is the more remarkable, as this structure is admirably rendered by Prof. Schröter in the plate devoted to *Lolium perenne*.

But these and other errors that we might point out, scarcely detract from the great value of the work before us,—a value which is, however, greatest in Switzerland, where it was produced by the help of a subsidy from the Federal Government. The translator has considerably modified this value to English agriculturists, by literally translating the text without any reference to the effect our insular climate and more northern latitude may have upon the plants. Thus, among the best forage plants we find *Galega officinalis*, from South-eastern Europe, and *Anthyllis Vulneraria* which, though abundant in the alpine pastures of Switzerland, is not likely to commend itself for use among us. In the same way we find *Poa alpina* recommended to be sown as a pasture grass, and *Phalaris arundinacea*. *Holcus lanatus* did not deserve a plate, except to point it out as a grass to be avoided; and besides the *Holcus*, there are others that scarcely reach the position of best pasture grasses. The mistake has been in introducing a Swiss work among us in an English dress as if it were a native, whereas one is reminded in every page that it is a foreigner. Yet foreigner as it is, it is full of practical information of the first importance to the agriculturist, and we trust it will secure the wide circulation it deserves.

William Carruthers.

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*A Contribution to the Flora of Derbyshire.* By the Rev. W. H. Painter. 8vo, pp. 156, map. London: Bell & Son. Price 7*s*. 6*d*.

The compiler of this 'Contribution' has done useful work in bringing together in a convenient form the notes and observations on the flora of Derbyshire, hitherto scattered through various works, but mainly those of the more recent papers published in this Journal. The future botanist who undertakes a comprehensive Flora of this most interesting of the Midland Counties will find Mr. Painter's book useful, as pointing out where he may look for fuller knowledge; but the loose manner in which the material collected has been used will necessitate reference to the original sources.

While this 'Contribution' shows that good and valuable work has been done in Derbyshire by men whose names are honoured amongst botanists, such as the Revs. Andrew Bloxam, Churchill Babington, and Dr. Hewett, and more recently by those whose names are a guarantee for close and accurate observation, such as Mr. J. G. Baker, the Revs. W. H. Purchas and W. R. Linton, &c., we find in it but little evidence of the compiler's own knowledge of either the county or its flora.

The work opens with a Preface, deeply imbued with religious sentiment, but giving no reason for the publication of so incomplete a work. This is followed by the Introduction, in which is given a short description of the geological and physical features of the county, with an account of the principal rivers and their tributaries; also "Topographical Divisions," the county being arranged artificially into three portions. Following this is the "Names and Species Limit," "Classes of Citizenship," "Types of Distribution," and "Zones of Temperature and Altitude," copied verbatim from Mr. J. G. Baker's 'Flora of the Lake District.'

The statistics of the classes of citizenship are not given; they are as follows:—Native, 693; colonist, 56; denizen, 33; alien, 50; casual, 33; doubtful, 64; varieties, 165; so that one-third of the whole record belong to the four last classes.

Mr. Painter's summary of the types of distribution is somewhat misleading, as will be seen when it is placed side by side with one compiled from his own text:—

| | | | |
|---|---|---|---|
| British | 532 | Should be | 486 |
| English | 282 | ,, | 221 |
| Germanic | 14 | ,, | 14 |
| Highland | 9 | ,, | 9 |
| Scottish | 30 | ,, | 30 |
| Atlantic | 3 | ,, | 3 |
| Intermediate | 16 | ,, | 16 |
| Local | 3 | ,, | 3 |
| Total | 889 | Should be | 782 |

Following this is the "Bibliography of the Botany of Derbyshire," from Ray's 'Synopsis' of 1696 to the 'Journal of Botany,' 1888. Few, however, of the works enumerated have been quoted in the text, the older authorities being quite ignored. No plan of the Flora is given, nor any explanation of the numerous initials and various signs so freely sprinkled through the text.

Then follows the Flora proper, the nomenclature and sequence being stated to be that of Mr. J. G. Baker's 'Flora of the Lake District.' The account given of the distribution of the various plants is very meagre, and contains very little that has not already appeared in this Journal.

The classes of citizenship and range of the various species is given, with occasional notes on the altitudes to which they ascend; these, which form an interesting feature of the record, are mainly borrowed from Mr. J. G. Baker's papers. With the common weeds of the wayside the author appears to be fairly familiar, but when he writes about critical plants he is less at home. This is more especially seen in his account of the Rubi, with which plants he appears to be but slightly acquainted. A few of the leading misconceptions may be noted. Under *R. carpinifolius* W. & N. the compiler says, "Professor Babington considers the specimens from Bradley Wood, named *R. Munteri* by Dr. Focke, to belong to this species": this implies that Prof. Babington considers *R. carpinifolius* W. & N. and *R. carpinifolius* Blox. to be identical, which is not the case. Under *R. diversifolius* Lindley, "*R. dumetorum* Warren, var. *intensus* Warren" (p. 47) should be "*R. dumetorum* W. & N., var. *intensus* Blox.," and "*R. dumetorum* Warren, var. *concinnus* Warren" (p. 48) should be "*R. dumetorum* W. & N., var. *concinnus* Baker." The compiler places under "*Hystrix*" *R. Bloxamianus* Coleman, a plant far more nearly allied to *R. radula*, from which it differs in the more abundant, equal setæ, leaves not white-felted, and white flowers. *Rubus anglosaxonicus* Gelert and *R. chlorothyrsus* Focke are both admitted on too slender grounds, the latter having been distinctly stated by Dr. Focke in the 'Exchange Club Report, 1888' not to be that plant. Under *Salix undulata* Ehrh. an interesting note is given from Dr. Buchanan White, who adopts the opinion given in Hooker's 'Students' Flora,' *viz.*, that it is synonymous with *S. lanceolata* Sm., and a hybrid between *S. triandra* and *S. viminalis*.

On the whole, considering the time the work has been in hand, it is disappointing; and it is to be regretted that so incomplete a book should represent the flora of Derbyshire. If, however, it induces some of the Derbyshire botanists to thoroughly investigate this truly interesting county, it will have done good work. It is well printed, contains a useful map, and is, so far as it goes, an interesting volume.

J. E. Bagnall.

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## Articles in Journals.

*Bot. Centralblatt* (No. 36).—E. Overton, 'Beitrag zur Kenntniss der Gattung *Volvox*.' — (Nos. 37, 38). —. Röll, 'Die Torfmoos-Systematik und die Descendenz-Theorie.' — (No. 37). B. Blocki, *Rosa thyraica* sp. n. — (No. 39). O. Loew & T. Bokorny, 'Ueber das Verhalten von Pflanzenzellen zu stark verdünnter Alkalischer Silberlösung.'

*Bot. Gazette* (Aug.).—W. G. Farlow, 'Notes on Fungi.'—L. M. Underwood, 'Notes on *Hepaticæ*.' — D. H. Campbell, 'Studies in nuclear division.' — B. D. Halstead, Observations on Barberry-flowers and on *Lithospermum*.

*Bot. Notiser* (häft. 4).—A. N. Lundström, 'Om regnuppfångande växter.'—J. Hagen, 'To for Skandinavien nye moser.'

*Bot. Zeitung* (Aug. 30–Sept. 20). — F. Rosen, 'Systematische und biologische Beobachtungen über *Erophila verna*' (1 plate).

*Gard. Chronicle* (Sept. 14).—*Podophyllum pleianthum* (fig. 44).—(Sept. 28). *Watsonia viridifolia* var. *O'Brieni* N. E. Brown. — *Primulina Tabacum* (fig. 52).

*Journal de Botanique* (Aug. 1).— J. Costantin, '*Echinobotryum & Stysanus*' (1 plate). — —. Masclef, 'Études sur la Géographie botanique du Nord de la France.' — N. Patouillard, 'Fragments Mycologiques' (*Polyporus arcuatus*, *P. pachyphlœus*, *P. rufo-ochraceus*, *P. Delavayi*, *Hexagona æqualis*, *Capnodium fructicolum*, *Acanthostigma? Hederæ*, spp. nn.).—(Aug. 15). —. Vladescu, 'Sur la structure de la tige des Selaginelles.' — P. Maury, 'Plantes du Haut-Orénoque' (*Dioscorea Holmioidea*, *Schieckia flavescens*, *Pitcairnia armata*, spp. nn.).—P. Hariot, 'Sur le genre *Cephaleuros*.'

*Notarisia* (July).—G. Lagerheim, 'Sur le *Chætomorpha Blancheana*.' — D. Levi-Morenos, 'Ricerche sulla fitofagia delle larve di Friganea.'—G. B. De Toni, 'Intorno al genre *Ecklonia*.'

*Oesterr. Bot. Zeitschrift* (Sept.). — M. Willkomm, 'Neue Arten der Spanisch-portugiesischen Flora' (*Serratula Sesanei*, *Omphalodes Kuzinskyanæ*, *Saxifraga Cintrana*, spp. nn.). — R. v. Wettstein & G. Sennholz, 'Zwei neue hybride Orchideen' (*Orchis speciosissima* (*speciosa* × *sambucina*), *O. Pentecostalis* (*speciosa* × *maculata*). — J. Velenovsky, '*Lepidotrichum*, eine neue Cruciferengattung' (= *Ptilotrichum Uechtritzianum* Born.).—P. Ascherson, 'Zur Synonymie der *Eurotia ceratoides*.'—R. v. Wettstein, 'Die Gattungen *Erysimum* & *Cheiranthus*.'—G. Jennholz, '*Adenostyles canescens* (*A. glabra* × *A. Alliariæ*).—J. Bornmüller, 'Beiträge zur Flora Dalmatiens.'

# REVISION OF THE SPECIFIC FORMS OF THE GENUS *GYPSOPHILA*.

By Frederic N. Williams, F.L.S.

The genus *Gypsophila* was founded by Linnæus; and in the first edition of the 'Species Plantarum' nine species, ascribed by him to that genus, are enumerated. The best classification of the species which occur within a definite geographical area is that proposed by Boissier in the 'Flora Orientalis,' vol. i., p. 534. While he emphasizes the fact of the dissimilarity of the species, he admits the absence of distinct characters satisfactorily separating this genus from *Saponaria*. In order to facilitate the delimitation of the species referable to the genus, and the more effectually to circumscribe its characters in conformity with a more natural type, it is proposed here to exclude those forms in which the calyx is not distinctly 5-nerved with membranous interspaces between the nerves, or in which the unguis of the petal is either bilamellate or appendiculate, or in which the leaves are acerose or subulate-spinescent. This restriction excludes three of Boissier's eight sections—*Bolanthus*, *Pseudacanthophyllum*, and *Jordania*. Portions of his classification, depending as they do on the placental attachments and the condition of the embryonic radicle, though very scientific, are scarcely practicable in the examination of large collections of specimens. The first-named section might return to *Saponaria*, as in DeCandolle's 'Prodromus,' and the other two are better placed in *Acanthophyllum*, in which genus *Jordania* is included in the 'Genera Plantarum.' What is to be done with *G. ortegioides*, which forms Boissier's section *Phryna*, I do not know; but since its Greek name suggests an outcast, it might become the type of a new genus, if it cannot be included in *Tunica*. It is also proposed to include the genus *Ankyropetalum*, founded by Fenzl in 1843, as a subgenus of *Gypsophila*. The species referable to it have a cylindrical calyx, and anchoræform petals. I confess I have not been able to ascertain what "anchoræform" petals are, but presume they are three-lobed, like those of *G. hispida*: unfortunately all the specimens both in the British Museum and the Kew herbaria are quite destitute of flowers. It has also been suggested to make the generic description sufficiently elastic to include Bunge's genus *Allochrusa*, but, if it is not to be maintained, it would be best to sink it in *Acanthophyllum*.

The species as here delimitated are grouped in three subgenera, of which the first consists only of the *Saponaria porrigens* of Linnæus, the second coincides with Fenzl's *Ankyropetalum*, and the third contains seventy-one species.

In the following enumeration, it should be noted that where the plant is described as a species in Boissier's 'Flora Orientalis,' vol. i., pp. 534–557, this citation is given immediately after the specific name; in all other cases the reference to the original description is given. Where a second citation is given, it refers to a good published figure of the species. Only the principal synonyms

(which include plants described as species, and here reduced to varieties) are recorded under each species.

Gypsophila. — Calyx campanulatus turbinatus vel obconico-tubulosus, rarius cylindricus; 5-dentatus vel 5-fidus, inter 5 nervos membranaceus; nullis nervis commissuralibus tubum decurrentibus; basi ebracteolatus. Petala 5, disci sessilis cyathiformis margine inserta; ungue angusto longitudinaliter non bilamellato, laminâ basi nudâ, integrâ retusâ bidentatâ vel profundius bilobâ rarius trilobâ vel anchoræformi. Anthophorum parvum. Stamina 10. Styli 2. Capsula unilocularis, globosa vel ovoidea rarius oblonga, profunde quadrivalvis. Semina subreniformia umbilico marginali affixa: embryo periphericus.—Herbæ annuæ vel perennes raro suffruticosæ, pleræque glaucæ, paucæ glanduloso-pubescentes vel hispidæ. Folia plana vel canaliculata, sæpe carnosula. Flores plerumque parvi et numerosi, paniculati, nunc in dichotomiis solitarii, dilute rosei vel sæpius albi.

Subgenus I. Pseudosaponaria. — Calyx oblongo-campanulatus. Petali unguis apice constrictus a lamina distinctus. Ovarium 18–20-ovulatum. Annuæ.

1. G. porrigens Fenzl. (Fl. Orient.). *Saponaria porrigens* L. *Hagenia porrigens* Moench.

Subgenus II. Anchyropetala. — Calyx cylindricus. Petali unguis apice non constrictus, in laminam anchoræformem vel trilobam sensim dilatatus. Ovarium 6–10-ovulatum. Perennes.

2. G. arsusiana (Fl. Orient.). *Ankyropetalum arsusianum* Ky.
3. G. Reuteri (Fl. Orient.). *Ankyropetalum Reuteri* Boiss. et Haussk.
4. G. coelesyriaca (Fl. Orient.). *Ankyropetalum coelesyriacum* Boiss. et *A. gypsophiloides* Fenzl.
5. G. hispida Boiss. (Fl. Orient.).

Subgenus III. Eugypsophila.—Calyx campanulatus turbinatus vel obconico-tubulosus, dentatus lobatus vel partitus. Petali unguis apice non constrictus, in laminam truncato-retusam bidentatam vel profundius bifidam sensim dilatatus. Ovarium 2–24-ovulatum. Perennes vel annuæ.

Sectio I. Pauciovulatæ. — Folia acuta carinata. Calyx inter 5 nervos tenues late membranaceus. Ovario ovula 4 v. pauciora. Perennes.

6. G. frankenioides Boiss. (Fl. Orient.).
7. G. intricata Franch.; Ann. Sci. Nat. vi. 15 (1883), p. 238.
8. G. libanotica Boiss. (Fl. Orient.).
9. G. curvifolia Fenzl (Fl. Orient.).
10. G. capitata M. B. (Fl. Orient.). *? G. campestris* Pall., *G. glomerata* Adams.

Sectio II. Exscapæ. — Acaules dense pulvinares. Flores in cæspite subsessiles. Folia arcte imbricata. Calycis lobi obtusi. Stamina exserta. Semina echinato-tuberculata. Perennes.

11. G. IMBRICATA Rupr.; Fl. Caucasi, p. 177.
12. G. ARETIOIDES Boiss. (Fl. Orient.).

Sectio III. CAPITULIFORMES.—Flores capitula spherica densa basi foliis floralibus involucrata bracteis scariosis intermixta, formantes. Calyx brevis campanulatus, lobis late membranaceis. Lamina retusa. Stamina exserta. Ovarium 6–16-ovulatum. Capsula spherica. Perennes.

Subsectio 1. LOBATÆ. — Flores congesti capitula spherica densa formantes. Calyx usque medium vel ultrà lobatus.

13. G. GLOMERATA Pall. (Fl. Orient.); Botanical Cabinet, 1384. *G. capitata* Pall., Ledeb. *G. globulosa* Stev.

14. G. SPHÆROCEPHALA Fenzl. (Fl. Orient.). *G. pinifolia* Boiss. et Haussk.

15. G. TRANSSYLVANICA Spreng.; Syst. 4, 2, p. 179; Ic. Fl. Germ. 4996. *Banffya petræa* Bmg. in Enum. St. Transsylv. 1. p. 385. *G. petræa* Rchb.

Subsectio 2. DENTATÆ.—Flores congesti capitula spherica densa formantes. Calyx dentatus.

16. G. PILULIFERA Boiss. et Hldr. (Fl. Orient.); Tchih. Asie Mineure, 10.
17. G. OLYMPICA Boiss. (Fl. Orient.).
18. G. CAPPADOCICA Boiss. et Bal.; Diagn. Pl. Nov. ii. 6, p. 26.
19. G. CAPITULIFLORA Rupr.; Herb. Kew *ex* montib. Thian-Schan.
20. G. BECKERI Trautv.; Herb. Kew *ex* Daghestan. (1882).

Subsectio 3. PLUMOSÆ.—Flores paniculas subpyramidales densas plumosas formantes. Calycis dentes acuti.

21. G. PULPOSA Gilib.; Fl. Lithuanica, v. p. 153. *G. fastigiata* L. (ex parte). *G. cephalotes* Schrenck.

22. G. CARICIFOLIA Boiss. (Fl. Orient.).

23. G. STRUTHIUM L.; Sp. Plantarum, ed. 2; Willk. Ic. Hisp. i. 16. *G. collina* Stev.

Sectio IV. CAUDICULOSÆ. — Perennes cæspitosæ. Caudiculi tenues fragiles decumbentes. Caules floriferi breves foliati. Flores pauci solitarii vel per cymam foliosam terminalem sæpe racemiformem aut corymbiformem, dispositi. Calyx profunde lobatus. Capsula ovalis.

Subsectio 1. TRICHOPHYLLÆ. — Glabræ. Caules divaricatim dichotomi. Folia subfiliformia. Bracteæ herbaceæ foliaceæ. Calyx late viridi-vittatus intervallis membranaceis angustis.

24. G. SPERGULÆFOLIA Griseb.; Spic. Fl. Rumel. Bith. 1, p. 183; Vis. et Panc. Pl. Serb. Rar. 20.

Subsectio 2. LEPIDOPHYLLOIDES.—Caules polyphylli apice ramosi. Flores laxe dispositi. Bracteæ herbaceæ foliaceæ.

25. G. VIOLACEA Fenzl; Endlicher, Gen. Plantarum; Ledeb. Icon. Pl. Fl. Ross. 416. *Arenaria violacea* Ledeb. *A. cærulescens* Rudolph.

26. G. PETRÆA Fenzl; Endlicher, Gen. Plantarum (1836); Ledeb. Icon. Pl. Fl. Ross. 155. *Heterochroa petræa* Bge. in Ledeb. Fl. Altaïca, ii. (1833), p. 131. *Arenaria purpurea* Chamisso et Schlechtend. in Linnæa, i. (1826), p. 57. *A. sericea* Ser. in Dec. Prod. i. (1824). *A. rubicunda* Spreng. *A. cærulescens* Rudolph; *A. adenotricha* Bongard. *G. Bungeana* Dietr.

27. G. MICROPHYLLA Fenzl; Ledebour, Fl. Rossica, i. p. 291. *Heterochroa microphylla* Schrenck; Kar. et Kir.

28. G. DESERTORUM Fenzl; Ledebour, Fl. Rossica, i. (1842), p. 292. *Heterochroa desertorum* Bge. in Supplem. Fl. Altaïca (1835), p. 21.

29. G. SERPYLLOIDES Boiss. et Hldr. (Fl. Orient.).

30. G. CERASTIOIDES Don; Prod. Fl. Nepal.; Bot. Mag. 6699. *Acosmia rupestris* Benth. *Timæosia rupestris* Klotzsch.

31. G. HERNIARIOIDES Boiss.; Fl. Orient. Suppl. p. 84.

Subsectio 3. NANÆ. — Glanduloso-pubescentes. Caules nani tenues apice corymbosi. Bracteæ scariosæ. Calyx late viridi-vittatus intervallis membranaceis angustis.

32. G. NANA Bory et Chb. (Fl. Orient.).

33. G. GLANDULOSA Boiss. (Fl. Orient.).

Subsectio 4. TATAROPHILÆ. — Caules simplices v. apice parce ramosi. Flores plusminus coarctatæ. Bracteæ scariosæ.

34. G. SEDIFOLIA Kurz; Flora, v. (1872), p. 285. *G. tibetica* Hook. et Thoms.

35. G. URALENSIS Lessing; Linnæa, ix. (1834), p. 172. *Stellaria Gmelini* Nesterofsky.

36. G. DAVURICA Turcz.; Ledebour, Fl. Rossica, 1, p. 294.

Subsectio 5. REPENTES.— Caules polyphylli dichotomi ramosi. Flores laxi cymâ corymbosâ. Bracteæ scariosæ. Calyx inter nervos tenues late membranaceus.

37. G. REPENS L.; Sp. Plantarum, ed. 1; Ic. Flor. Germ. 5000. *G. prostrata* L., All., Rchb. *G. dubia* W. *G. serotina* Schult. *G. sabauda* Jord. *G. alpestris* Jord. et Four.

38. G. GMELINI Bge.; Ledebour, Fl. Altaïca, ii. (1833), p. 128; Ic. Pl. Fl. Ross. 402. *G. prostrata* Georgi (1800). *G. dichotoma* Besser (1809). *G. patrini* et *thesiifolia* Ser. (1824). *G. triquetra* Ledeb. *G. rupestris* Turcz. *G. Struthium* Pall. *Arenaria Gmelini* Fisch.

Sectio V. PANICULÆFORMES. — Herbæ plerumque glaucæ vel rarius suffrutices. Caules fere a basi paniculatim ramosissimi. Flores numerosissimi per cymas paniculæformes multoties iteratas. Bracteæ scariosæ v. herbaceæ. Calyx brevis, campanulatus v. turbinatus. Capsula spherica. Ovario ovula 6–20.

§ a. DIFFUSÆ (PERENNES). — Caules paniculati sæpius ramosissimi, oligophylli, basi fere foliorum denudati. Panicula surculis sterilibus suffulta. Calyx dentatus lobatus v. partitus, apicibus obtusis v. acutis. Lamina retusa. Capsula spherica.

Subsectio 1. CÆSPITOSÆ. — Herbæ cæspitosæ. Caules stricti fastigiati. Calyx late viridi-vittatus intervallis membranaceis angustis.

39. G. ARENARIA W. et K.; Pl. Rarior. Hungariæ, 1, p. 60, et t. 41. *G. fastigiata* L. (ex parte).

40. G. VIRGATA Boiss. (Fl. Orient.).

41. G. TENUIFOLIA M. B. (Fl. Orient.). *Arenaria pulchra* Schlecht.

42. G. BRACHYPETALA Trautv.; Act. Hort. Petropolit. ii. (1873), p. 471.

43. G. MEYERI Rupr.; Fl. Caucasi, p. 178.

Subsectio 2. COARCTATÆ. — Suffrutescentes pubescentes glaucescentes. Caules foliosæ. Cymæ coarctatæ densifloræ. Bracteæ scariosæ. Ovario ovula 6.

44. G. ERIOCALYX Boiss. (Fl. Orient.).

45. G. LEPIDIOIDES Boiss. (Fl. Orient.).

Subsectio 3. ROKEJEKÆ.—Caules herbacei oligophylli. Bracteæ foliaceæ herbaceæ angustissimæ. Calyx lobatus, late viridi-vittatus intervallis membranaceis angustis, lobis acutis.

46. G. ROKEJEKA Del. (Fl. Orient.); Fl. d'Egypte, 29 (1824). *Rokejeka capillaris* Forsk. (1775). *R. deserti* Poiret.

47. G. MONTANA Balf. f.; Proc. Roy. Soc. Edinb. xi. (1882), p. 501. *G. somalensis* Franch. (1883).

48. G. PULCHRA Stapf ined.; Herb. Kew. Iter Persicum, Dr. J. E. Polak (1882); in Horto botanico Vindobonensi culta.

Subsectio 4. TRICHOTOMÆ. — Polycephalæ basi suffrutescentes. Caules oligophylli crassi. Cymæ copiosissimæ trichotomæ squarrosæ. Bracteæ subherbaceæ. Calyx late viridi-vittatus intervallis membranaceis angustis dentibus obtusis.

49. G. TRICHOTOMA Wender. (Fl. Orient.).

50. G. HISPANICA Willk.; Sert. Fl. Hispanicæ, p. 172; Ic. Pl. Hisp. i. 16. *G. fastigiata* L. (ex parte). *G. Struthium* Asso.

51. G. HAUSSKNECHTI Boiss.; Fl. Orient. Suppl. p. 86.

Subsectio 5. ALTISSIMÆ.—Caules herbacei basi foliorum denudati etiam ramis floriferis aphyllis, brachiato-paniculati elatissimi stricti. Bracteæ semi-scariosæ. Calyx dentatus inter 5 nervos tenues late membranaceus, dentibus obtusis.

52. G. ALTISSIMA L.; Sp. Plantarum, ed. 1; Ic. Flor. Germ. 5003. *G. scariosa* Tausch. *G. latifolia* Fisch.

53. G. OLDHAMIANA Miq.; Annal. Mus. Lugduno-Bat. iii., p. 187. *G. altissima* Oldh.

Subsectio 6. PANICULATÆ.—Caules herbacei basi foliorum denudati ramis floriferis foliosis, intricatim et ramosissime paniculati, plusminus elati, flexuosi vel stricti. Flores minimi. Bracteæ omnino scariosæ. Calyx dentatus, inter 5 nervos tenues late membranaceus, dentibus obtusis rectis recurvisve.

54. G. PANICULATA L. (Fl. Orient.); Ic. Flor. Germ. 5005. *G. acutifolia* et *Steveni* Fisch. *G. glauca* et *Steveni* Hohenack. *G.*

*tatarica* Güldenst. *G. Tatarinowii* Horan. *G. altissima* et *repens* M. B. *G. glauca* Stev. *G. squarrosa* et *effusa* Tausch. *G. Stevenii* Schrank. *G. parviflora* Moench. *G. grandiflora* Desf. *Lychnis procera* Messerschm.

55. G. POLYCLADA Fenzl (Fl. Orient.).

56. G. SALIGNA Schrad.; Linnæa, x. (1836), p. 110.

57. G. ANATOLICA Boiss. et Hldr. (Fl. Orient.).

58. G. RUSCIFOLIA Boiss. (Fl. Orient.). *G. cordifolia* Fenzl. *G. reticulata* Hochst.

59. G. AUCHERI Boiss. (Fl. Orient.). *G. damascena* Boiss. (Fl. Orient.).

Subsectio 7. PERFOLIATÆ. — Caudex polycephalus crassissimus. Caules herbacei basi foliorum denudati ramis floriferis foliosis, intricatim et ramosissime paniculati plusminus elati, flexuosi vel sæpius stricti. Bracteæ herbaceæ foliaceæ angustæ acutæ. Calyx dentatus, dentibus obtusis rectis recurvisve.

60. G. PERFOLIATA L.; Sp. Plantarum, ed. 1; Ic. Pl. Fl. Ross. 176. *G. tomentosa* L. *G. sabulosa* Stev. *G. scorzoneræfolia* Desf. *G. hirta* Ledeb.

61. G. VENUSTA Fenzl (Fl. Orient.). *G. Wiedemanni* Boiss. (Fl. Orient.).

62. G. ARROSTII Gus. (Fl. Orient.). *G. nebulosa* Boiss. et Hldr. *G. altissima* Sm. *Arrostia dichotoma* Rafin.

§ b. EFFUSÆ (ANNUÆ).—Caules paniculati a basi rarissime supra medium dichotome ramosi, ramis tenuissimis, plerumque usque ad apices foliosi. Panicula nullis surculis sterilibus suffulta. Calyx profunde partitus, apicibus obtusis v. acutis. Lamina bifida bidentata vel retusa rarissime integra.

Subsectio 1. DRYPIDIPETALA.—Bracteæ herbaceæ. Calyx dentibus acutis v. obtusis. Petala bifida v. biloba.

63. G. ALSINOIDES Bge. (Fl. Orient.).

64. G. LINEARIFOLIA Fisch. et Mey. (Fl. Orient.). *G. trichopoda* Wender.

Subsectio 2. DICHOGLOTTIDES.—Flores plurimi, ab infimis dichotomiis per totam herbam sparsi, alares et terminales, pedicellis elongatis. Bracteæ herbaceæ v. scariosæ. Calyx dentibus obtusis. Petala sæpissime retusa.

65. G. SZOWITZII Fisch. et Mey. (Fl. Orient.). *G. ramosissima* Fisch. et Mey.

66. G. ADENOPHORA Boiss. et Buhse. (Fl. Orient.).

67. G. MELAMPODA Bien. (Fl. Orient.). *Dichoglottis spathulæfolia* Fisch. et Mey. *G. spathulæfolia* Fenzl. MS.

68. D. ELEGANS M. B. (Fl. Orient.); Schrank, Plant. Rar. Hort. Monac. 21. *G. diffusa* Karel. *G. silenoides* Rupr. *Arenaria pulchella* Adami.

69. G. VISCOSA Murr. (Fl. Orient.); Comm. Götting. 6, 3.

70. G. PLATYPHYLLA Boiss.; Fl. Orient. Suppl. p. 87.

71. G. AUSTRALIS A. Gray. *Dichoglottis australis* Schlechtend. in Linnæa, xx. (1847), p. 631.

Sectio VI. MACRORRHIZÆA. — Calyx obconico-tubulosus vel oblongus, dentatus. Ovarium multiovulatum. Capsula ovata vel oblongo-cylindrica. Herbæ annuæ ramis caulium tenuissimis.

Subsectio 1. VITTATÆ. — Calyx turbinato-campanulatus v. oblongus, late viridi-vittatus intervallis membranaceis angustissimis.

72. G. BELLIDIFOLIA Boiss. (Fl. Orient,).

73. G. FLORIBUNDA Turcz. (Fl. Orient.). *Dichoglottis floribunda* Kar. et Kir. *Saponaria floribunda* et *filipes* Boiss.

74. G. PICTA Boiss. (Fl. Orient.).

Subsectio 2. STRIATÆ. — Calyx longus, obconico-tubulosus v. campanulatus, inter 5 nervos tenuissimos late membranaceus.

75. G. MURALIS L. (Fl. Orient.); Ic. Flor. Germ. 4997. *G. agrestis* P. *G. purpurea* Gilib. *G. arvensis* Börck. *G. rigida* Georgi. *G. serotina* Hayne. *G. tenuissima* Edgen.

76. G. TUBULOSA Jaub. et Spach. (Fl. Orient.); Ill. Plant. Orient. 14, t. 6.

## CHRONOLOGICAL SEQUENCE OF THE SPECIES.

*Concordance of Linnean Species.* — Of the species enumerated in the first edition of the 'Species Plantarum,' five are included here as distinct species; the other four are disposed of as follows:—

*G. aggregata* = *Arenaria aggregata* Lam.
*G. fastigiata* is divided into separate species.
*G. rigida* = *Tunica rigida* Scop.
*G. prostrata* = *G. repens.*

In the second edition (1762), another species, *G. Struthium*, is described: the other form described here does not differ essentially from *G. perfoliata.* To these must be added *Saponaria porrigens*, described in 1767, and first included in *Gypsophila* by Fenzl, not by Boissier, as usually stated. This brings the present number of the species described by Linnæus down to seven.

*The post-Linnean species up to 1824.* — This embraces the period which terminates with the appearance of DeCandolle's 'Prodromus.' Nine species belong to this period; they include:—

*Rokejeka capillaris* (1775) of Forskåhl, which was afterwards figured and described by Delile, by whom it was placed in *Gypsophila.*

*G. pulposa* (1782), a segregate of *G. fastigiata.*

*G. viscosa* (1783), of which an excellent figure is given with the original description.

*G. glomerata* (1797), in Nov. Act. Acad. Scient. Imper. Petropol. x.

*G. arenaria* (1802), a segregate of *G. fastigiata.*

*G. capitata*, *tenuifolia*, and *elegans*, in the 'Fl. Taurico-Caucasica' (1808).

*G. transsylvanica*, first described as *Banffya petræa* in 1816 by Baumgarten, which genus, however, has not been retained.

In DeCandolle's 'Prodromus,' under the section *Struthium* of this genus, there are four species which, from their meagre descriptions, are scarcely identifiable, viz., *G. tenella* and *grandiflora* Poir., and *G. Patrini* and *thesiifolia* Ser.: and other forms referable to *Saponaria* and *Tunica*.

*From 1824 to 1860* (excluding Boissier's species).—This includes twenty-one species, some of which were first described under *Heterochroa* (1833) and *Dichoglottis* (1835), two genera which have not been retained, and which were founded for some supposed aberrant forms of *Gypsophila*. In order of date, they are:—

*G. cerastioides* (1825), of Nepaul, for which two new genera were subsequently proposed.

*G. Arrostii* (1829), perhaps the only species of economic value.

*G. Gmelini* and *Heterochroa petræa* (1833).

*G. uralensis* (1834), in Russia.

*Dichoglottis linearifolia*, *D. desertorum*, and *G. trichotoma* (1835).

*Heterochroa violacea* and *G. saligna* (1836).

*G. nana* (1838), in the 'Nouv. Fl. du Péloponnèse.'

*G. tubulosa* (1842), described and figured in 'Illustr. Plant. Orient.'

*G. Szowitzii*, *floribunda*, *microphylla*, and *davurica*, in Ledebour's 'Fl. Rossica,' i. (1842).

*G. spergulæfolia* Griseb. (1843), not to be confused with *G. spergulifolia* Jaub. et Spach, which probably should be referred to *Acanthophyllum*.

The other four of this period include *Dichoglottis australis* (1847), *G. hispanica* (1853), *G. melampoda* and *G. alsinoides* (1860).

The next two species described were *G. pilulifera* and *G. picta*, in Tchihatcheff's 'Asie Mineure' (Pt. iii. Botanique), in 1866.

*Boissier's Species.*—We now come to the publication of the 'Fl. Orientalis' (1867). Including a few scattered through the previously published series of 'Diagnoses,' twenty-four of the species enumerated in this revision (nearly one-third of the whole number) are to be found in Boissier's great work: this therefore brings the number of species up to sixty-three.

*From 1867 to the present year*, thirteen species have been added to the list:—

*G. Oldhamiana* (1867–8), found in Korea, and first referred to *G. altissima*.

*G. imbricata* and *Meyeri*, in Ruprecht's 'Flora Caucasi' (1869).

*G. sedifolia*, of Western Tibet (1872), *vide* Hook, 'Fl. of Brit. India,' i.

*G. brachypetala*, of Turkestan (1873), *vide* 'Suppl. Fl. Orient.' (1889).

*G. montana* (1882). Specimens of this plant were sent from Aden in 1872, but were not described or named. Dr. Bayley Balfour re-discovered the species in his exploration of the Island of Socotra, and further described two varieties in different localities of the island. About the same time the species was discovered by M. Révoil in his exploration of Somali-land, and the plant was subsequently described under the name of *G. somalensis* by Prof. Franchet, the year after the publication of Dr. Balfour's name. The Somali-land specimens are glabrous. The plant is certainly very similar to a form found by Dr. J. E. Polak in Persia, in 1882, and named *G. pulchra* by Dr. Stapf, of Vienna, after being raised from seed in the botanic garden of that city.

*G. intricata* (1883). Described by Prof. Franchet from M. G. Capus' specimens collected in a scientific expedition in Turkestan, and placed by him near *G. Arrostii*.

*G. Beckeri* (Daghestan).
*G. capituliflora* (Turkestan).
*G. pulchra* (Persia).
*G. herniarioides* (Afghanistan).
*G. Haussknechti* (Daghestan).
*G. platyphylla* (Turkestan).

## A PUZZLE IN 'TOPOGRAPHICAL BOTANY.'

### By F. Buchanan White, M.D., F.L.S.

Since the English botanists who almost every year visit the western parts of Perthshire frequently record in the pages of this Journal the results of their explorations, it is desirable that, for the sake of accuracy, a definite understanding should be come to regarding the "county" or "vice-county" of a small district in the extreme west. Watson divided Perthshire into three vice-counties. "East Perth is cut off from Mid Perth by the rivers Garry and Tay. Mid Perth is separated from West Perth by a line traced over the high ground or watershed so as to divide the tributaries of the Tay from the Forth; the little county of Clackmannan and a small detached portion of Stirling being taken as parts of West Perth."

There is no ambiguity then in this, viz,, that Mid Perth is drained by the Tay, and West Perth by the Forth. Now there happens to be a part of Perthshire which is drained by neither of these rivers nor by their tributaries, but which drains into Loch Lomond, and thus belongs to the western side of Scotland.

By Watson's definition this district belongs neither to Mid Perth nor to West Perth; by the map in Top. Bot. it falls into West Perth; by recording botanists it is placed sometimes in Mid Perth and sometimes in West Perth.

This then is the point which ought to be definitely settled, namely, in what county or vice-county is this portion (Glen Falloch) of Perthshire to be placed?

It may seem to some a matter of little importance whether it is placed in Mid Perth or West Perth, so long as there is uniformity in recording its plants. It is, however, a matter of extreme importance, since, if it be included in one or other of these vice-counties, and records made accordingly, some very erroneous impressions regarding the distribution of plants will be conveyed. The ultimate object of a work like 'Topographical Botany,' is, I presume, not merely to provide a record of the plants of each county, but to afford material to the philosophical botanist for generalizations on the causes and peculiarities of plant distribution. Now if a plant, which throughout the rest of Britain is strictly confined to the west of the north-to-south watershed, is recorded as occurring in Perthshire to the east of that watershed, one of two things will follow. Either the peculiar western distribution of the plant will be obscured, or the Perthshire record will be taken as erroneous. As it happens there are one or two plants which illustrate this. The most notable of these is *Carum verticillatum*, a plant which is permanently confined to the western side of Britain. In Perthshire it forms no exception to this, and yet if it is recorded for Mid Perth or West Perth, it would convey the impression that it is a striking exception, or else an error. A less remarkable instance, and yet one of equal importance as regards this part of Britain, is afforded by *Pinguicula lusitanica*, which also occurs in Glen Falloch. If then Glen Falloch is taken as belonging to either Mid or West Perth, we would have a record of a plant which, except in the extreme north is entirely western, apparently occurring in the eastern part of central Scotland. The reverse of this may also happen, and the records of plants mostly confined to the east, but extending in this district to the west, be made obscure.

Under the circumstances I have stated, I ask: Where is the west-draining part of Perthshire to be placed? For my part I think that, if the Watsonian method of dividing the country is to be retained, it must be added to Dumbarton, but in that case the part of Stirling which drains into Loch Lomond must also be added to Dumbarton, if any distinction between the eastern and western sides of the country is to be indicated in the records. Similarly, parts of Argyle and Westerness must be added to Mid Perth, since they lie on the eastern side of the watershed.

But has the time not come for a redivision of Britain on natural principles? Mr. Watson himself admitted that a better division than the one which he was, in a measure by force of circumstances compelled to adopt, might be found. Now that botanists are more numerous, and since most of the counties have been worked out, it would surely not be impossible to make a census of the British plants according to the great river-basins or similar natural divisions. For the most part it would be merely a re-arrangement of the material already collected, with the great advantage of perspicuously showing the more important features of the distribution of our plants,—features which the present arrangement of counties and vice-counties rather conceals than demonstrates. It seems to me, that in adhering to the Watsonian divisions, botanists have failed to carry out to its proper extent the scheme which Mr. Watson had in view.

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## NOTES ON SOME BRITISH CARICES.

By Arthur Bennett, F.L.S.

Prof. L. H. Bailey, of the Cornell University, U.S.A., last year paid a visit to Europe, and was enabled to study the types of *Carex* in a large number of European herbaria, finding it impossible to deal with the North-American species with any certainty unless this was done. The results he has published in the 'Memoirs of the Torrey Botanical Club,' No. 1, May, 1889, pp. 1—85. In this he deals with the specimens seen in twenty-six herbaria and collections (some American). From this I propose to notice such remarks, &c., as touch upon our British Carices.

I will take the paper and go through it, indicating the pages to which the notes are intended to apply *in extenso*.

Page. 27.—Prof. Bailey places *C. hæmatolepis* Drej. (our Caithness plant) under *C. cryptocarpa* Meyer.* When the plant was first found in Scotland I had the advantage of looking over Dr. Almquist's fine collection of Scandinavian Carices, and with these and our public herbaria I saw pretty well all the forms that had been placed under *C. salina* then in authentic examples. I could not see how to separate *crytocarpa* and *salina* as superspecies; and since I have seen no reason to alter my opinion. On the other hand, Prof. Bailey has had great facilities for seeing types, and great weight must be given to his conclusions.

Page 28.—*C. flava* and forms. It seems to me desirable that Prof Bailey's careful determinations and notes upon these confused plants should be given *in extenso*, for the benefit of workers who may not have access to his paper. It will be seen that the result is shortly this: *C. lepidocarpa* Tausch, must bear the name (as a variety) of *C. flava* v. *elatior* Schlecht.; *C. Œderi* auct. angl. is *C. flava* v. *cyperoides* Marsson; and *C. flava* v. *minor* Townsend, is practically *Œderi* Ehrh. I am in doubt where Prof. Bailey would place v. *argillacea* Townsend. Unfortunately I neglected when he was here to show him this form, and he does not seem to have noticed it in our herbaria.

"37 Carex flava L. Sp. Pl. i. 975 (1753), v. s. Hb. Linn.

"*C. foliosa* Gaud. Agr. Helv. ii. 191 *teste* Koch. *C. uetliaca* Sut. Helv. ii. 251, *teste* Koch. *C. flava* forma *lepidocarpa* and *androgyna* Olney Exsicc. fasc. iii. Nos. 26 and 27 (1871), v. s.

"As compared with its varieties, *C. flava* is distinguished by its sessile or nearly sessile staminate spike, the contiguous and sessile pistillate spikes, the large, long-beaked, and much reflexed perigynium, the broad and abruptly divaricate bract, the broad and flat leaves, and the conspicuous yellow color of the whole plant. Europe, North America.

"The various forms of this perplexing species have been singularly misunderstood and confounded. This is particularly true of the var. *Œderi*, the name having been transferred in recent years to a plant very different from the one originally characterized. A prolonged and careful study of the species in many herbaria discloses the fact that the American forms differ from the European, and enables me to present, with considerable confidence, the following arrangement:—

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* *C. cryptocarpa* Cheeseman, Trans. New Zealand Inst. 14, p. 412, may be called *C. pulvinatus*.

"Var. ELATIOR, Schlecht. Fl. Berol. i. 477 (1823), v. s. Hb. Berol.

"*C. flava*, Host, Gram. Austr. i. 48, t. 63, f. 4. v. t. *C. lepidocarpa*, Tausch, Flora, 1834, 129. *C. Lipsiensis*, Peterm. Fl. Lips. 58 (1838), v. s. Hb. Berol. *C. pyriformis*, F. Schultz, Jahr. xv. 122, *teste* F. Schultz. *C. flava*, var. *lepidocarpa*, Anderss. Cyp. Scand. 25 (1849), and many authors since. *C. Marssoni*, Auerswald, Bot. Zeit. 1852, 409. *C. flava*, var. *Marssoni*, Marsson, Fl. Neu-Vorp. 537 (1869).

"Staminate spike long-peduncled, pistillate spikes scattered or remote and commonly not more than two and the lowest one usually peduncled, perigynium smaller, straight or but slightly bent, bracts and leaves narrow, and the colour dull green throughout, tall and slender (1 to 2 ft.). Europe. In America, represented by

"Var. RECTEROSTRATA, Bailey, Bot. Gaz. xiii. 84 (1888).

"Staminate spike sessile or nearly so, pistillate spikes three to four, of which the two or three uppermost are sessile and contiguous or approximate, the lowest being somewhat remote and more or less peduncled, spikes looser-flowered than in var. *elatior*, perigynium shorter than in the species and straight or nearly so, bracts long and spreading, but narrow, the lowest sheathing, leaves narrow, whole plant green, tall. Vancouver Island, *Macoun*.

"Var. ŒDERI, Liljeblad, Svensk. Fl. 1st. ed. (1792).

"*C. divisa* Œder, Fl. Dan. fasc. vii. 4, t. 371 (1768). *C. Œderi*, Ehrh.* Calam. Exsicc. No. 79 (1790?); Willd. Mem. Acad. Roy. 1794, 44, t. 1, f. 2; Schkuhr, Riedgr. 67, t. Ff. 26 (1801). *C. patula*, Host, Gram. Austr. i. 48, t. 64, f. 1 and *C. Œderi* Host, l. c. 49, t. 65, f. 1, v. t. *C. Œderi*, Eng. Bot. t. 1773 (1801), v. t. *C. flava* var. *flavescens*, Wahl. Act. Holm. xxiv. 150 (1803). *C. flava*, var Willd. Sp. Pl. iv. 269 (1805). *C. flava*, *β*. Schkuhr, Riedgr. Nacht. 56 (1806). *C. flava*, var. *lutescens*, Wahl. Fl. Lapp. 234 (1812), v. s. Hb. Wahl. *C. flava*, var. *Œderi*, Schlecht. Fl. Berol. 477 (1823), and many authors since. *C. Œderi*, vars. *œdocarpa*, *elatior* and *pygmæa*, Anderss. Cyp. Scand. 25 (1849). *C. flava* forma *depressa*, F. Schultz, Herb. Norm. Exsicc. cent. x. No. 955 bis. v. s. *C. Eu flava, var. lepidocarpa*, Syme, Eng. Bot. ed. iii. x. 159, t. 1673 (1870), v. t. *C. flava*, vars. *pumila* and *intermedia*, Coss. et Germ. Fl. Paris, Ed. i. *C. flava*, var. *patula*, Coss. et Germ. Fl. Paris, Ed. iii. *C. flava*, var. *minor*, Towns. Journ. Bot. xix. 161, v. s.; Bailey, Bot. Gaz. xiii. 84 (1888).

"Staminate spike usually short-stalked, or a very small pistillate spike at its base, pistillate spikes green, scattered, some of them often radical, the lower ones peduncled, all densely flowered, perigynium small, rounded below, beak shorter than the body, straight or nearly so, bracts comparatively broad and long, spreading, leaves broad for the size of the plant which is low (3 to 8 in.)

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* "Ehrhart cites Retz as authority for the species, but Retz declares that his plant is not the plant of Ehrhart (Kongl. Vet. Acad. Handl. xiv. 314, Stockholm, 1793). See also Lilj. Svensk., and Schk. Riedgr."

and diffuse, and green in color. Europe, generally distributed, and Atco, New Jersey, *Martindale*, introduced. Often confounded with *elatior*. This is not the plant which commonly passes for var. *Œderi* (see var. *cyperoides*), but it is certainly the one so understood by the older botanists. I have not been able to find Ehrhart's specimens, but the figure of Œder's *C. divisa*, which is the starting-point of var. *Œderi* and which is regarded by the Danish botanists as this plant (teste Lange, Nomen. Fl. Dan. pp. 12 and 279 (1887)), is unequivocal, as is also Willdenow's excellent figure (Mem. Acad. Roy. 1794). Schkuhr's figure is less characteristic, but is, nevertheless, clearly this plant. An excellent illustration of the transfer of the name to another plant is afforded by the 'English Botany.' Its figure of *C. Œderi* in 1801 is the plant under discussion, but its figure so named in 1870 is var. *cyperoides* Represented in America by

"Var. GRAMINIS.

"Staminate spike short and sessile, pistillate spikes green, two or three and contiguous, globular or short-oblong, sessile, perigynium long-pointed but straight or nearly so, the beak often rough, the bract leafy and usually divaricate, leaves comparatively broad, the plant low (4 to 10 in. high), erect, green. In grassy places, probably generally distributed in the North-eastern States. A dwarfed and green form of the species, and is probably common. Specimens from Scotland closely resemble this, but several characters appear to separate them.

"Var. CYPEROIDES, Marsson, Fl. Neu-Vorpommern, 537 (1869). v. s.

"*C. chrysites*, Link, Hb. Berol. v. s. *C. Œderi*, Syme, Eng. Bot. ed. iii. x. 157, t. 1674 (1870), v. t., and most European botanists.

"Staminate spike very small and short, closely sessile, pistillate spikes short (usually a half-inch or less long) or globular, narrow, closely sessile and agglomerate at the top of the culm (or rarely one remote or radical), perigynium very small and short-beaked (half or less the size of the foregoing varieties), straight or nearly so, yellow or golden in colour when mature, the bracts long and mostly erect and involucre-like from the agglomerate position of the spikes (whence the appropriate varietal name), the leaves narrow and erect, plant low (3 to 8 in. high), and yellowish. Europe; from Portugal, *Link*, to England and Sweden, *Andersson*. In America, represented by

"Var. VIRIDULA.

"*C. viridula* Michx. Fl. Bor.-Am. ii. 170 (1803), v. s. Hb. Michx.; Boott, Ill. t. 523 (1867); Olney, Exsicc. fasc. i., No. 27 (1871), v. s. *C. irregularis*, Schw. An. Tab. (1823), *teste* Dewey. *C. Œderi* Schw. and Torr. Monogr. 334 (1825); Dewey, Sill. Journ. x. 38 (1826); Gray, Gram. and Cyp. Exsicc. ii. No. 166 (1834), v. s.; Sartw. Exsicc. No. 124 (1848), v. s., and all American authors.

"Differs from the last, among other characters, by its greater height (often a foot or more high), larger and longer spikes, and much longer and usually stricter bracts, and usually the much duller color of the spikes. Newfoundland to Pennsylvania and westward to Montana, *Williams* and S. Utah, *Parry*. Usually appears distinct from the species, but its relationship to var. *cyperoides* is very close and that variety clearly belongs to *C. flava*."

Page 37. *C. saxatilis* L., *C. pulla* Good.—Prof. Bailey observes:—"I am entirely unable to draw clue lines of separation between the various forms of *C. saxatilis*, *C. vesicaria*, and *C. monile*." With reference to this a note by Læstadius, in his 'Loca Parell. Plant.' 1832, may be worth quoting:—"*Carex pulla* varietas *vesicariæ* e longinquo esse potest, at *Carex rotundata* magis aperti cum *C. ampullacea confluit*" (p. 289).

Page 38. I doubt the specimens from Colorado and Utah being the same as *C. Grahami* from Scotland. Prof. Bailey observes:—"It is possible that future observers may be able to detect varietal differences between the plants of Scotland and America."

Page 39. I agree with Prof. Bailey that *C. vesicaria* var. *dichroa* Ands. is rather a *rostrata* var. than one of *vesicaria*.

Page 56. *C. filiformis* L.—Prof. Bailey describes the Central-European plant as a variety (v. *australis*), taking the American and Scandinavian plants to be the same as the type, and I suppose our plant also.

Page 63. *Carex fusca* All. Fl. Ped. 2, p. 269, 1785; *C. polygama* Schk. Riedgr. 84, t. 76, 1801; *C. Buxbaumi* Wahl. Köngl. Acad. Handl. 24, p. 163, 1803.

This is earlier than *C. subulata* Schum. En. Pl. Saell. 1801." Suggested by Mr. Druce. Bot. Ex. Club Rep. 1888, p. 237.

*Carex bipartita* All (1785), is *Kobresia caricina* Will. "Allioni's figure of this plant is not characteristic, yet the specimens are unmistakable, and their history is clear. In Balbis' herb. at Turin, the same plant is labelled *D. bipartita*." See under *C. lagopina* Wahl. in Journ. Bot. 1887, p. 336.

Page 65. Prof. Bailey considers that the varieties *infuscata*, *lutosa*, and *pudica* of *C. rigida* Good., are "apparently mere incidental forms."

"*C. rigida* v. *inferalpina* Laest., is *C. vulgaris* v. *hyperborea* Boott. = *C. hyperborea* Drejer." The confusion with *C. hyperborea* Drej. has been great; the true plant is only given as Faroen and Icelandic by Nyman; but Drejer, in his 'Revisio' (1841), says, "Lapponia, Laestad! in herb. Hornem." He does not, however, make any observation in his paper which would connect Laestadius's *inferalpina* with his *hyperborea;* yet Laestadius had described his plant in 1832, the paper, however, was not published until 1839 (Loca Parell. Plant. p. 287), sub *C. saxatilis*, where he says it approaches *C. aquatilis* v. *subacuta*. The name of *hyperborea* has been applied to forms of *aquatilis* Wahl. and *limula* Fries. Andersson (Cyper. Scand.), gives no note to connect the above, but observes under *hyperborea*, "Forma latifolia, quæ etiam alpes summas inabitat, *C. rigidæ*, *C. limulæ*, et *aquatilis epigejis* maxime cognitae; altera *angustifolia C. vulgari* et *C. aquat. sphagnophulæ* non dissimilis."

This touches on British Botany in this way:—What is the *C. rigida* v. *inferalpina* from Scotland? My determination of this was confirmed by Dr. Almquist, and I failed to detect any differences in specimens so named in his herbarium. These, however, it must be admitted, were not types; and Almquist himself, in Hartmann's Skan. Fl. ed. 11, seems hardly to have a very definite opinion of *C. hyberborea*, as he says, "*C. hyberborea* Drej. R. car. bor. after the description, and an example from Vahl is principally a dark-glumed form of *C. salina β.* (i. e., *kattegatensis* Fr.), with a mixture of similar forms of *C. aquatilis* and *rigida*."

It may be noted that C. P. Laestadius, in his Bidrag till. känn. Lapp. (1860), has *C. hyperborea* and *rigida inferalpina*, and under the former gives a locality from L. L. Laestadius (the author of the Loca Parell., &c.); and Blytt, 'Norges Flora,' gives them as distinct. Prof. Bailey does not actually say he has seen a specimen from Laestadius, but "v. s. Hb. Havn." I have not yet been able to see types myself. If our plant is not *inferalpina*, what is it?—*D. limula* Fries? Certainly our plant agrees better with the figure of that plant in Fl. Danica (t. supp.), 105, than it does with the one of *hyperborea* (t. 2482).

If really an error, this is an instance of what I once affirmed before, "Carices cannot be named unless types are seen."

In one instance Prof. Bailey is not consistent, *i. e.*, in retaining *C. vulgaris* Fr. for *C. Goodenovii* Gay, which name is certainly three years anterior to that of Fries.

In his 'Synopsis of the North-American Carices,' Prof. Bailey, used the name *C. Magellanica* Lamarck, for our *C. irrigua*. By a reference to Lamarck's herb. he confirms this; our plant must therefore bear Lamarck's name.

Altogether, Prof. Bailey's paper is one of the most valuable that has ever been contributed to the elucidation of the genus, and it is to be hoped that it will be in the hands of all who care for this difficult but most interesting genus. One can but regret the large amount of name-changing our American *confrères* will have to face; but it had better be done at once, although opinions may differ as to the specific value to be placed on some of the forms.

## *JUNCUS TENUIS* (Willd.) IN KERRY.

By Reginald W. Scully, F.L.S.

While botanising this summer in Kerry, I came across abundance of a *Juncus* which, at the time, was quite new to me. Babington's 'Manual' contained nothing to which I could refer my plant, and it was only some weeks later that I learnt from Mr. Arthur Bennett that the plant was *Juncus tenuis* (Willd.) As this is a wide extension to the range of a very rare British plant, a short account of its Kerry localities may be interesting.

I first came across the plant growing abundantly on an old grass-grown road, which runs from Sneem to Caherdaniel, the latter a small village about two miles from Darrynane. This long-disused road can be traced from Blackwater Bridge, near Kenmare, to Caherciveen, a distance of more than forty miles, and no doubt originally formed the main road for any traffic that existed in these remote parts. However, a more modern road has long superseded this old route, which is now given up to a few pedestrians or turf-laden donkeys. These old roads are quite a feature in Kerry, and seem usually designed on the plan of going from one hill-top to another, to see probably where they had to go next. Days may be spent walking on them, sometimes high above their more modern rivals, sometimes as far below.

The *Juncus* was first met with growing on and by the side of such a road, about seven or eight miles west of Sneem, where it dips rather steeply to cross a small stream. No village is near, and cottages are few and far between, nor is any suspicious plant entered, either in my day's notes or in the 'London Catalogue' as occurring close by.

About a week later, while following the shore-line from Blackwater Bridge to Kenmare, I came across a good deal more of this *Juncus*. The plant grows here on a small grassy flat within a few yards of the sea, and quite near such maritime plants as *Carex distans*, *C. extensa*, *Juncus Gerardi*, &c.; the latter were within tidal influence, while *Juncus tenuis* was just outside its reach. Kenmare Bay, or River, is here something over half a mile wide, and the locality is about two miles from Kenmare. Following the shore-line further, which is here much broken up by small tidal estuaries and limestone headlands, the *Juncus* occurred again at the head of one of these small slob bays, about half a mile nearer Kenmare, in company with much the same plants as in the previous situation.

Unless further observation of the plant alters my belief, I certainly think it native in its Kerry localities. It seems a lover of roadsides, and of most erratic distribution. Its Kenmare localities are fully twenty miles, in a straight line, from its Old Sneem Road station; and while the former are just by the shore, the latter is a mile inland, and about a hundred feet above sea level. Bearing on the question of its possible introduction, it may be well to quote Mr. Arthur Bennett's remarks on the plants which I sent to him. He says, "Your specimens are much finer than the English or Scotch specimens, and accord well (as to robustness, &c.), with specimens from New Zealand."

For particulars of the Herefordshire locality, as well as for much interesting information about this plant, I would refer readers to Purchas and Ley's 'Flora of Herefordshire,' where a plate is also given of the species. However, neither in this plate, nor in any description of *Juncus tenuis* that I have seen, can I find any reference to the remarkable scarious sheathing bases of the leaves, bearing at the top a prominent divided ligule: a very striking character, and one quite sufficient to distinguish it from any other British *Juncus*.

## *LEJEUNEA ROSSETTIANA* MASSAL.

By Richard Spruce, Ph.D.

This is truly a most distinct and interesting new species. From *L. calcarea* Lib., its nearest European ally, it differs, not merely by the absence of the leaf-style, or process at the exterior base of the lobule, but by the entire outer surface of the leaf, lobule included, being beset with longer and denser papillæ; whereas in *L. calcarea* the lobule is naked and merely reticulate with the plane cellules. The lobule is, besides, larger and more rhombic, and armed with two to four (usually three) sharp teeth at and near the apex, which teeth in *L. calcarea* are either wanting or are reduced to mere denticulations. The upper lobe (or leaf proper) is more briefly and narrowly acuminate. Finally, the inflorescence appears dioicous, while in *L. calcarea* it is normally monoicous, although unisexual plants are not infrequent.

Perhaps the very nearest ally of *L. Rossettiana* is the Javan *L. venusta* Sande-Lacoste, Hep. Jav. tab. xii., which has quite the same habit and general character; each leaf-cell, of both lobe and lobule, bearing a long papilla; underleaves and styles equally absent, &c. It differs in the obtuse leaves and the smaller, more inflated, entire lobule. Another species of the same group (*Cololejeunea*, Hep. Am.), agreeing with ours in the scabrous leaves and perianth, is *L. erigens* Spruce MS., which I gathered in some abundance in North Brazil and in conterminous parts of Venezuela; but this is a larger species, and the leaves, &c., are minutely muricate rather than echinate or papillose.

The styliform appendage to the leaves of *L. calcarea* seems to have been first noticed by Nees, nearly 60 years ago, who considered it a rudimentary stipule, only occasionally present. It has been correctly described by Lindberg in his 'Hepaticæ in Hibernia lectæ' (1875); and he supposed it analogous to the leaf-style of *Frullania*. A good while ago I came to the conclusion that it was a unicrural, or dimidiate, stipule, from the following considerations. The so-called "stipules" of the leafy Hepaticæ are under-leaves, each attached to a side-leaf, along one side of the stem only; and not merely adjacent to it, but in most cases actually connate with it at the base, as can be seen in every genus where stipules exist. In those groups of *Lejeunea* which I have called *Drepanolejeunea* and *Leptolejeunea* the stipules are usually cloven nearly to the base into two divergent, subulate or setaceous, segments or crura, each often of a single row of cellules. When one of the two crura is obsolete, or undeveloped, we have a dimidiate, or unicrural, stipule, exactly corresponding in form and insertion to the style of certain *Cololejeuneæ*.

In all stipuliferous Hepaticæ a tuft of radicles is (or may be) emitted from the base of each stipule, so that the leaves are (normally) twice as numerous as the stipules or the root-tufts. But in the *Cololejeuneæ* rootlets are (or may be) developed at the base of every leaf, and that brings them into close relationship to two other small subgenera, *Diplasiolejeunea* Spruce and *Colura* Dumort., which stand alone among Hepaticæ in the possession of 2-ranked bilobed stipules, one to each leaf on both sides of the stem; as a consequence the root-tufts are (or may be) as numerous as the leaves. The accordance of *Cololejeunea* with *Diplasiolejeunea* in this character, and some resemblance in habit, have induced previous observers to place the two groups together, indeed to mix them up.

We can now—thanks to the researches of Mr. Pearson—count four species of *Cololejeunea* in Britain, viz. *L. calcarea* Lib., *L. Rossettiana* Massal., *L. microscopica* Tayl., and *L. minutissima* Smith. The first of these alone is styliferous; although *L. microscopica* shows a unicellular papilla at the base of the lobule which may represent a rudimentary style. I possess fine type-specimens of *L. calcarea*, gathered in the Ardennes by Mme. Libert herself; and I have gathered others exactly agreeing with them in various localities in England, Ireland, and the Pyrenees—all having the essential features of the species; nor have I once fallen in with *L. Rossettiana*. The most constant character of *L. calcarea* seems to be the smooth lobule, the style sometimes becoming obsolete.

In South America I gathered eleven species of *Cololejeunea*, besides some marked varieties which may hereafter take rank as species. In all these the root-tufts are duplicated, but in none of them can I detect a leaf-style, although I have scrutinised them repeatedly. M. Stephani, however, has described three styliferous species, viz. *Cololejeunea stylosa* St., from the Philippines ('Hedwigia,' 1888); *C. trichomanis* G., from Australia and *C. bistyla* St., from Norfolk Island ('Hedwigia,' 1889).

I ought to add that the late Professor Leitgeb ('Untersuch.' &c. ii. p. 2 & 4) opined the style of *L. calcarea* to be a dimidiate stipule, but did not assign any proof thereof. Dr. Gottsche (Reliq. Rutenb. p. 362) denies its stipulary nature, but does not say what he himself considers its true homology.

# FLORA OF THE IVEL VALLEY, BEDFORDSHIRE.

By James Saunders.

The following list of plants from the valley of the River Ivel was made during a brief visit to that district on August 4th, 1889. The names were written down at the moment of observation, and in any doubtful case specimens were secured for future examination. The visit was made with the intention of observing especially the purely aquatic flora, for which purpose the river-bed and adjacent water-courses were carefully examined for a mile or two above Biggleswade, in the direction of Shefford. Possibly the most interesting portions of the route were the disused canals or straight cuts, which were excavated for the so-called River Ivel navigation. These are now becoming choked with aquatic plants, notably with *Phragmites communis*, *Equisetum limosum*, and pond-weeds. In one instance the bed of a lock was almost solely occupied by *Sagittaria* in full blossom.

When the visit was projected, lively hopes were entertained that some *Characeæ* would be obtained, but although the stream was repeatedly dredged, not the least trace of these plants could be found. A similar experience fell to the lot of Mr. T. B. Blow and Mr. H. Groves, who visited the Shefford district to seek for *Characeæ*, but found none.

The primary object of the visit was to make one step in the direction of the production of a Flora of Bedfordshire that should be based on the river systems. Having collected many data in reference to the plants growing in the catchment areas of the Colne and Lea, of the Thames river system, and also of the Ousel, Flitt, Crawley Brook, as well as the main stream of the Ouse system, it was felt to be desirable to continue the observation towards the east of the county where the Ivel is situated. It need hardly be said that many other very common plants were seen, in addition to those now enumerated.

Ranunculus fluitans *Lam.*
R. circinatus *Sibth.*
Erysimum cheiranthoides *L.*
Reseda Luteola *L.*
Stellaria aquatica *Scop.*
Hypericum perforatum *L.*
H. quadrangulum *L.* Agg.
Vicia Cracca *L.*
Spiræa Ulmaria *L.*
Rubus Idæus *L.*
Agrimonia Eupatoria *L.*
Hippuris vulgaris *L.*
Myriophyllum spicatum *L.*
Callitriche vernalis *Koch.*
Epilobium hirsutum *L.*
E. parviflorum *Schreb.*
Bryonia dioica *L.*
Conium maculatum *L.*
Sison Amomum *L.*
Sium erectum *Huds.*
Pimpinella major *Huds.*
Chærophyllum temulum *L.*
Œnanthe fluviatilis *Coleman.*
Angelica sylvestris *L.*
Daucus Carota *L.*
Caucalis Anthriscus *Huds.*
Sambucus nigra *L.*
Valeriana officinalis *L.*, var. sambucifolia *Auct. ampl.*
Dipsacus sylvestris *L.*
Eupatorium cannabinum *L.*
Filago germanica *L.*
Pulicaria dysenterica *Gaertn.*
Chrysanthemum segetum *L.*
Tanacetum vulgare *L.*
Petasites vulgaris *Desf.*
Arctium majus *Schk.*
Carduus nutans *L.*
Hottonia palustris *L.* Sandy, *Miss Higgins*, 1880.
Symphytum officinale *L.* Both white and purple flowers.
Lycopsis arvensis, *L.*
Myosotis palustris *With.*
Convolvulus arvensis *L.*
C. sepium *L.*
Verbascum nigrum *L.*
Scrophularia aquatica *L.* Agg.
Veronica Anagallis *L.*
V. Beccabunga *L.*
Mentha hirsuta *L.*
Calamintha menthifolia *Host.*
Scutellaria galericulata *L.*
Stachys palustris *L.*
S. sylvatica *L.*
Ballota nigra *L.*
Polygonum Persicaria *L.*
P. lapathifolium *L.*
P. amphibium *L.*
P. terrestre *Leers.*
Rumex sanguineus *L.*, var. viridis *Sibth.*
R. obtusifolius *L.*
R. Hydrolapathum *Huds.*

Salix fragilis *L.*, S. triandra *L.*, S. purpurea *L.*, S. viminalis *L.*, S. alba *L.*, for the aggregates.
Elodea canadensis *Mich.*
Iris Pseudacorus *L.*
Allium vineale *L.* Too frequent in cornfields, *C. Crouch.*
Sparganium ramosum *Curtis.*
Lemna minor *L.*
Alisma Plantago *L.*
Sagittaria sagittifolia *L.*
Butomus umbellatus *L.*
Potamogeton polygonifolius *Pour*
P. perfoliatus *L.*
P. Friesii *Rupr.*, *teste A. Bennett.*
Scirpus lacustris *L.*
Carex paludosa *Good.*
C. riparia *Curtis.*
Phalaris arundinacea *L.*
Glyceria aquatica
Phragmites communis *Trin.*
Equisetum arvense *L.*
E. limosum *Sm.*, var. fluviatile *L.*

# BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.

By James Britten, F.L.S., and G. S. Boulger, F.L.S.

(Continued from p. 313.)

**Mackay, James Townsend** (1775?–1862): b. Kirkcaldy, Fife, 1775?; d. Dublin, 25th Feb. 1862. A.L.S., 1806. LL.D., Dublin, 1850. M.R.I.A. Founder and Curator, Bot. Gard., Trin. Coll., Dublin. 'Fl. Hibernica,' 1836. Discovered *Arenaria ciliata*, &c. Contributed largely to Eng. Bot. (1927, &c.). Plants at Dublin. Pritz. 200; Jacks. 576; Mag. Nat. Hist. 1831, 167; Journ. Hort. ii. 1862, 457; Proc. Linn. Soc. 1862, cv.; Turner, Fuci, i. 116; R. S. C. iv. 161. *Mackaia* Gray = *Fucus*, part. *Mackaya* Arn. = *Erythropalum*. *Mackaya* Harv. *Erica Mackaiana*.

**Mackay, John** (d. before 1803): d. Edinburgh, before 1803. Of Edinburgh. Nurseryman. Contributed largely to Eng. Bot., 1793–1802: Eng. Bot. tt. 311, 1123, &c.

**Mackay, John** (fl. 1841–1862). Druggist. Of Edinburgh. 'Remarks on Oïdium,' Edinb. Trans. Scot. Soc. Arts, vi. 1864, 175. R. S. C. iv. 162.

**Mackay, John Bain** (1795–1888): b. Echt, Aberdeensh., 5th Feb. 1795; d. Totteridge, Herts, 9th Aug. 1888. Nurseryman at Clapton. F.L.S., 1824. Jacks. 410. Garden, xxiv. 287.

**M'Ken, Mark Johnston** (1823–1872): b. Maxwelltown, Dumfries, 1823; d. Pietermaritzburg, Natal, 20th April, 1872. Collected in Jamaica. Curator, Natal Bot. Gard., 1851–53 and 1860–1872. 'Ferns of Natal,' 1869. 'Synopsis Filicum Capensium' (with W. T. Gerrard), 1870. Pritz. 200; Jacks. 350, 351; Gard. Chron. 1872, 806; Journ. Bot. 1872, 223. *Mackenia* Harv. = *Schizoglossum*.

**Maclagan, J. McGrigor** (fl. 1851). 'On *Colchicum autumnale*,' Edinb. Monthly Journ. Med. Sci. xiii. 1851, 501; xiv. 1. R. S. C. iv. 165.

**Maclagan, Philip Whiteside** (fl. 1847). M.D. Of Canada.

'Plants collected in the line of the Rideau Canal, Canada West,' Ann. Nat. Hist. xx. 11 (1847). R. S. C. iv. 165.

**Macleay, Alexander** (1767–1848): b. Ross-shire, 24th June, 1767; d. Sydney, N. S. W., 18th July, 1848. F.L.S., 1794; Sec., 1798–1825. F.R.S., 1809. Colonial Sec., N. S. W., 1825–1836. Entomologist. "A practical botanist," R. Brown. Proc. Linn. Soc. ii. 45. Oil portr. by Lawrence at Linn. Soc. *Macleaya* Br. *Narcissus Macleaii* Lindl.

**Macleay, William Sharp** (d. 1864–5). M.A. F.L.S., 1821. Zoologist. 'Laws regulating Insects and Fungi,' Linn. Trans. xiv. 46 (1822). R. S. C. iv. 168.

**McNab, Catherine** (1812–1857): b. Edinburgh, 1812; d. Dailly, Ayrshire, 1857. Daughter of Wm. McNab. 'Botany of the Bible,' Edinburgh, 1850–51. Prepared sheets of 'Object Lessons in Botany.'

**McNab, Gilbert** (1815–1859): b. Edinburgh, 26th Nov. 1815; d. St. Ann's, Jamaica, 21st Jan. 1859. Son of Wm. McNab. M.D., Edinb., 1836. Orig. Memb. Bot. Soc. Edinb., 1836. Practised and collected in Jamaica. Assisted Macfadyen in his 'Flora of Jamaica.' Plants at Kew and Edinburgh. Trans. Bot. Soc. Edinb. vi. 354.

**McNab, James** (1810–1878): b. Richmond, Surrey, 25th April, 1810; d. Edinburgh, 19th Nov. 1878; bur. Warriston Cemetery, Edinburgh. Son of Wm. McNab. Curator, Bot. Gard. Edinburgh, 1849–1878. Orig. Memb. Bot. Soc. Edinb.; President, 1872. Contributed to Bot. Mag., Sweet's Brit. Flower Garden, Edinb. Philosoph. Journ., Trans. Bot. Soc. Edinb., Garden, &c. R. S. C. iv. 170; viii. 300; Journ. Bot. xvi. 382; Trans. Bot. Soc. Edinb. xiii. 381; Gard. Chron. 1871, 1033; and, with portr., 1878; ii. 661. Life, with portr., in 'Garden,' xii. (1877).

**McNab, Robert** (fl. 1842). Of the Bridge of Earn. 'North British Cultivator: a treatise on Gardening, Agriculture, and Botany,' 1842.

**McNab, William** (1780–1848): b. Dailly, Ayrshire, 1780; d. Edinburgh, 1st Dec. 1848. Gardener at Kew from about 1800. Superintendent, Edinburgh Bot. Gard., 1810–1848. A.L.S., 1825. Pritz. 200; R. S. C. iv. 170; Gard. Chron. 1848, 812; Cott. Gard. i. 165; Proc. Linn. Soc. ii. 52; Bot. Gazette, i. 53. Portr. at Kew. *Macnabia* Benth. (1832) = *Nabea* Lehm. (1831).

**Macrae, James** (fl. 1823–1830). Gardener. At Bot. Garden, St. Vincent's, 1823. Collected for Hort. Soc., 1824–1826, in Sandwich, Galapagos, and other islands, Chili, and Brazil. Superintendent, Ceylon Bot. Garden, 1827–1830. Lasègue, 455; Trans. Hort. Soc. vi. p. iii. *Macræa* Lindl. = *Viviania*. *Macraea* Hook. f. = *Lipochæta*. *Macræa* Wight = *Phyllanthus*.

**Macreight, Daniel Chambers** (fl. 1820–1868). B.A., Dublin, 1820. M.D., Dublin, 1827; Oxon, 1828. F.L.S., 1833. Lecturer on Bot., Middlesex Hospital. Orig. Memb. Bot. Soc. Lond., 1837. 'Manual of Brit. Bot.,' 1837. Collected in Ireland, Eng. Bot. 2770. Pritz. 200; Jacks. 234. *Macreightia* A. DC. = *Maba*.

**Madden, Edward** (d. 1856): d. Edinburgh, June, 1856. Lieut.-Colonel, Bengal Artillery. Pres. Bot. Soc. Edinb. F.R.S.Ed. Collected in Simla and Kumaon. 'Nepal Plants,' Trans. Bot. Soc. Edinb. v. 116. Proc. Bot. Soc. Edinb. 1856, 45. *Maddenia* Hook. f. & Thoms.

**Maidstone, Nathaniel** (fl. 1696–1707). Sent plants from China and India to Petiver. Herb. Sloane, lix. Ayscough Cab. 948.

**Main, James** (c. 1775–1846): b. Edinburgh?, circ. 1775; d. Chelsea, 1846. A.L.S., 1829. Of Edinburgh. Collected in China, 1792–94. Afterwards employed by Hibbert. Edited Paxton's 'Horticultural Register,' 1835–36. 'Vegetable Physiology,' 1833. 'Popular Bot.,' 1835. Account of Chinese voyage in Paxton, Hort. Reg. 1836, 62, &c. Pritz. 201; Jacks. 577; R. S. C. iv. 192; Proc. Linn. Soc. i. 303.

**Maingay, Alexander Carroll** (1836–1869): b. Great Ayton, Yorks., 25th Oct. 1836; d. Rangoon, 1869. M.D., Edinburgh, 1858. Collected in N. China, Burmah, Malaya, &c. Journ. Bot. 1870, 63; Trans. Bot. Soc. Edinb. xi. 36; R. S. C. viii. 309. Plants, MSS., and drawings at Kew. *Maingaya* Oliv.

**Malcolm, William** (fl. 1778–1805). F.L.S., 1805. Nurseryman. Of Kensington. 'Catalogue of Plants,' 1778. *Malcomia* Br.

**Mangles, James** (fl. 1839). Captain R.N. 'Floral Calendar,' 1839. Sent Swan River plants to Lindley. Pritz. 202; Jacks. 213. *Manglesia* Endl.

**Mangles, James Henry** (1832–1884): b. 1832; d. Haslemere, Surrey, 24th April, 1884. Son of preceding. F.L.S., 1874. Grew Rhododendrons. Proc. Linn. Soc. 1883–86, 106.

**Mangles, Robert** (fl. 1839). Brother of James Mangles. Of Sunninghill. Introduced many W. Australian plants. Sent Swan River plants to Lindley. *Manglesia* Endl.

**Mann, R. J.** (fl. 1840–1856). 'Fl. of Central Norfolk,' Mag. Nat. Hist. iv. (1840) 390. 'Guide to . . . . . Vegetable Kingdom,' 1856. Jacks. 44; R. S. C. iv. 216.

**Manningham, Rev. Thomas** (d. 1750): d. Slinfold, Sussex, May, 1750; bur. Slinfold. M.A. D.D. Rector of Slinfold, 1711. Prebendary of Westminster. Friend of Dillenius. "Really curious and diligent botanist," Sherard in Rich. Corr. 180. R. Syn. iii. Pref. Introduced rare plants at Slinfold, 'Sussex Archæological Collections,' xxxiii. 198.

**Mantell, Gideon Algernon** (1790–1852): b. Lewes, Sussex, 1790; d. Clapham, 10th Nov. 1852. F.L.S., 1813. F.R.S., 1825. M.D. Practised in Lewes, Brighton, and Clapham. Palæontologist. Proc. Linn. Soc. ii. 235; Jacks. 577; R. S. C. iv. 219.

**Maplet, Rev. John** (d. 1592). B.A., Camb., 1563. M.A., Camb., 1567. Rector of Great Lees, Essex, 1568; of Northall, Middlesex, 1576. 'A Green Forest . . . .,' 1567. Pult. i. 86; Jacks. 26; Cooper, Athen. Cantabrig. ii. 135.

**Marcet, Jane,** *née* **Haldimand** (1785–1858): b. Geneva, 1785; d. London, 28th June, 1858. 'Conversations on Veg. Physiology,' 1829. Pritz. 203; Jacks. 577.

**Marsden, William** (1754–1836): b. Verval, Ireland, 16th Nov. 1754; d. Edgegrove, Herts, 6th Oct. 1836. F.R.S. Secretary to the Admiralty, 1795. Collected in Sumatra, Bencoulen, 1771–1779. 'History of Sumatra,' p. 94, &c., 1783 (plates by E. W. Marsden), 1810. Plants at Brit. Mus. Letters in Banks. Corresp. vi. (29th Oct. 1789), &c. Mem. Wern. Soc. i. 29. *Marsdenia* Br.

**Marsh, Rev. Thomas Orlebar** (fl. 1797). Of Bedford. F.L.S., 1797. Contrib. to Eng. Bot. (t. 499).

**Marshall, Henry** (fl. 1823–1836). Surgeon to the Forces. In Ceylon. 'Coco-nut tree,' Edinburgh, 1832. Pritz. 203; Jacks. 208; R. S. C. iv. 250.

**Marshall, Humphrey** (1722–1801): b. West Bradford, Pennsylvania, 10th Oct. 1722; d. same place, 5th Nov. 1801. Cousin of John Bartram. Founded Marshallton Bot. Gard. 'Arbustum americanum,' 1785. Plants in Herb. Brit. Mus. Jacks. 359. 'Memorials of John Bartram and H. M.,' 1849. *Marshallia.*

**Marshall, James** (fl. 1695–1705). Surgeon. Sent plants from Virginia to Petiver (Mus. Pet. n. 178) and Plukenet (Amalth. 102).

**Marsham, Robert** (1707–1794): b. 1707; d. Stratton, Norfolk, 4th Sept. 1794. F.R.S. Papers on growth on trees in Phil. Trans. li.–lxxi. (1751–97). Kept Calendar of Nat. Phenomena more than fifty years. Banksian Correspondence, vi.

**Martin, George Anne** (1807?–1867): b. 1807; d. Ventnor, 7th Jan. 1867. Of Ventnor. F.B.S., Edinb., 1836. M.D., Edinb., 1837. 'Undercliff of I. of Wight,' 1849. Jacks. 254; Trans. Bot. Soc. Edinb. ix. 90.

**Martin, John** (1783?–1855): b. Tyldesley, Lanc., 1783?; d. Tyldesley, 13th Aug. 1855. Hand-loom weaver. "An accurate botanist," Sir W. J. Hooker. Phyt. i. 199; Cash, 108; Buxton, Bot. Guide Manchester, xiv.

**Martin, William** (1767–1810): b. Mansfield, Notts., 1767; d. 1810. F.L.S., 1796. 'Petrificata Derbiensia,' 1809.

**Martyn, John** (1699–1768): b. London, 1699; d. Chelsea, 1768. F.R.S., 1727. Professor of Bot., Cambridge, 1733–1761. Friend of Dr. Sherard, 1719. Translated Tournefort's 'History of pl. . . . . about Paris,' 1720. Founded Bot. Soc., Lond., 1721–26. Lectured in London, 1729. 'Methodus pl. circa Cantabrigiam,' 1727. 'Historia pl. rarior.' 1728–1732. Herbarium bequeathed to Cambridge Univ. Pult. ii. 207; Rees; Pritz. 206; Jacks. 578; Memoir by Thomas Martyn, 1770; Gorham; Vol. of correspondence in Bot. Dept., Brit. Mus. *Martynia.*

(To be continued.)

## SHORT NOTES.

Welsh Records, 1889.—The following species are not in Top. Bot. Ed. 2, for 48 Merionethshire, N. Wales:—*Cardamine hirsuta*, *Drosera intermedia*, *Menyanthes trifoliata*, *Scutellaria galericulata*, *Anagallis tenella*, *Salix repens*, *Scirpus fluitans*, *Carex lepidocarpa*, *Phragmites communis*, *Aira præcox*, all by the Festiniog Road; *Salix repens*, near Llyn Llagi, east of Llyn Dinas. For 49 Carnarvonshire: *Polygala depressa*, bank of Llyn Dinas; *Œnanthe fluviatilis*, Llyn y Gador, side of road to Carnarvon; *Lactuca muralis*, queried in Top. Bot.; plentiful by side of road near Pen y Guryd, Carnarvon.—F. C. Roper.

A Correction. — In August I recorded *Hieracium* "*melanocephalum*" for Argyle. Mr. Hanbury and myself, on visiting the locality this summer, could not find that plant, but *H. gracilentum* in plenty. The two are much alike in a dried state, but a fresh examination of last year's specimens leads us to refer them to *gracilentum*. The original record must therefore be cancelled.—Edward S. Marshall.

Erica vagans near Bournemouth. — In the 'Flora of Hampshire,' Mr. Townsend speaks of this heath having been found in two spots near Bournemouth, but beyond the Hants border. It may be well, therefore, to put on record the fact that it now grows in Hants, on the moor near Bournemouth, at a distance of about two miles from the localities described by Mr. Townsend. Having been directed to this place a few weeks ago, I found three clumps of the plant, each covering about a square yard of ground, and one of them at a distance of some twenty yards from the other two. They looked as truly native as the other common heaths growing around, and if originally planted there (as seems most likely), they evidently do not dislike the home provided for them, as they are flowering freely and obviously spreading. I have not heard of the recent occurrence of this species in Dorset, and so far have looked for it there in vain. But it is so abundantly planted in Bournemouth gardens, that it may well occur in more places than one in the heathy districts near, without any intentional interference with nature on man's part.—W. Moyle Rogers.

## NOTICES OF BOOKS.

*Monographiæ Phanerogamorum;* edit. Alph. et Cas. DeCandolle. Vol. VI. — Andropogoneæ. By Edouard Hackel. 8vo, pp. 716; 2 plates. Paris, G. Masson. April, 1889.

Prof. Hackel has undertaken the grasses for the DeCandolle 'Monographiæ'; the present volume contains the first tribe, the *Andropogoneæ*, i. e., 425 species out of 4000. It is an admirable performance, it involves the resolution of very numerous difficulties, and the way in which some of these are resolved may be discussed here without any intention to assert that the author has sometimes chosen the more objectionable of two dilemmas.

Hackel accepts the limits of the tribe *Andropogoneæ* exactly as fixed by Bentham in the 'Genera Plantarum' (one species, *Cleistachne*, being added); and he accepts very nearly the genera as defined by Bentham, the principal difference being that *Sorghum*, *Chrysopogon*, and *Heteropogon*, admitted as genera by Bentham, stand as subgenera of *Andropogon*. Hackel also understands by a "species" pretty nearly what Bentham did; thus the old cultivated Sorghums are but a single species, *Andropogon Sorghum* Brotero.

The subjoined table shows the arrangement of the tribe by Hackel:—

Species of the Tribe Andropogoneæ.

| | Genera. | Species. | Old World. | New World. |
|---|---|---|---|---|
| Subtribus I.<br>Dimerieæ | 1. Dimeria | 13 | 13 | ... |
| Subtribus II.<br>Sacchareæ | 2. Imperata | 6 | 2 | 5 |
| | 3. Miscanthus | 7 | 7 | ... |
| | 4. Saccharum | 12 | 8 | 4 |
| | 5. Erianthus | 18 | 13 | 6 |
| | 6. Pollinia | 29 | 29 | ... |
| | 7. Spodiopogon | 5 | 5 | ... |
| | 8. Polytrias | 1 | 1 | ... |
| | 9. Pogonatherum | 2 | 2 | ... |
| Subtribus III.<br>Ischæmeæ | 10. Apluda | 1 | 1 | ... |
| | 11. Ischæmum | 42 | 39 | 3 |
| | 12. Lophopogon | 2 | 2 | ... |
| | 13. Apocopis | 2 | 2 | ... |
| | 14. Eremochloa | 8 | 8 | ... |
| | 15. Thelepogon | 1 | 1 | ... |
| Subtribus IV.<br>Rottboellieæ | 16. Vossia | 1 | 1 | ... |
| | 17. Urelytrum | 2 | 2 | ... |
| | 18. Rhytachne | 4 | 4 | ... |
| | 19. Rottboellia | 28 | 20 | 10 |
| | 20. Manisuris | 1 | 1 | 1 |
| | 21. Ophiurus | 4 | 4 | ... |
| | 22. Ratzeburgia | 1 | 1 | ... |
| Subtribus V.<br>Euandropogoneæ | 23. Trachypogon | 1 | 1 | 1 |
| | 24. Elionurus | 15 | 8 | 7 |
| | 25. Arthraxon | 8 | 8 | ... |
| | 26. Andropogon | 196 | 138 | 70 |
| | 27. Cleistachne | 1 | 1 | ... |
| | 28. Themeda | 8 | 8 | ... |
| | 29. Iseilema | 5 | 5 | ... |
| | 30. Germainia | 1 | 1 | ... |
| | Total Andropogoneæ | 425 | 336 | 107 |

It is noteworthy that the whole thirty genera occur in the Old World—only nine in the New. One-fourth of the species occur in the New World, and, of these, seventy belong to the genus *Andropogon*. Of the total 425 species, twenty-eight occur both in the Old and New World—in the main forming a connection between Tropical Africa and Equatorial America. The *Andropogoneæ* are thoroughly tropical; it is true that a dozen species extend to Europe, two or three to Canada, one to Amurland, while on the other limit a few occur at the Cape and in Argentina; but the whole strength of the tribe, in number of individuals as well as of species, is found in the Tropics and below 5000 ft. altitude.

In the definition of the five subtribes of *Andropogoneæ*, and of their genera, Hackel lays stress on nearly the same characters as Bentham, *i.e.*, principally on the inflorescence; he finds, however, that, in the frequent case of paired spiculæ, one sessile fertile, the other pedicelled imperfect, it is a character of small import whether the pedicelled spicula be male, sterile, rudimentary, or obsolete. On the other hand, he finds without exception that the subtribe *Ischæmeæ* are separated from the subtribe *Eu-Andropogoneæ* by having the sessile spiculæ 2-flowered, *i. e.*, having the lower flower always male, whereas in the subtribe *Eu-Andropogoneæ*, the third glume (representing the lower flower) never contains stamens. This is the more remarkable, as in the Panicums, in one and the same species, the lower flower often varies, male or sterile.

We have lately heard a good deal of the employment of anatomical characters in systematic work, and we have seen some very crude attempts by anatomists to reconstruct a whole suborder on one anatomical character alone: what should be aimed at is to give the cellular arrangement seen in a cross-section of the stem its due weight (and no more) in the sum of characters which determine the systematic position of the plant. In the *Andropogoneæ*, Hackel has repeated and extended Kling's investigation into the anatomy of the roots; he has also examined cross-sections of the leaves of 100 species, and he finds in each case the results of no practical use for systematic purposes.

In describing the spiculæ of grasses, Hackel follows the new terminology adopted by Bentham, and not the old terms which were accurate enough for R. Brown, Trinius, and Kunth. Herr Hackel gives his reasons at pp. 21 and 22 of his Introduction. He explains that the 3rd glume (reckoning from the base of the spicula in the *Andropogoneæ*) is a deckspelze (bract) homologous with the lower empty glumes, and is, therefore, called Gluma III. throughout the book. It may sometimes contain a male flower, or often may be empty (or contain a pale only); the next glume above, Gluma IV., contains a perfect or female flower. It is therefore very wrong to call Gluma III. and Gluma IV. lower pales, as has heretofore been the custom; it is worse to treat them as parts of the flowers; and yet more wrong to call Gluma III. a sterile or tabescent flower in those cases where no trace of a flower is in its axil.

So far our author. But something may be said in defence of the old plan. In describing a *Poa* we used to say, "spiculæ 5–6-flowered"; and then we require a term for the flower plus its deckblatt and vorblatt; if we may not use "flower" for this, we must invent "anth," or some new term. But is it so indefensible to include the bract and bracteoles in the term flower? Eichler well remarks that those, who argue that the term flower ought to be restricted to the essential organs of reproduction, *viz.*, the pistil and stamens, cannot easily be answered. If, in *Malvaceæ*, the calyx is reckoned a part of the flower, why not the epicalyx? Is the calyx other than a false whorl of leaves very near the flower? The usage of terms, as of the term flower, may conveniently be varied somewhat in different orders.

The further objection is taken that, when we call the uppermost flower in a spicula of *Poa* or the lower in a spicula of *Andropogon* tabescent, we feign an existence and a suppression—we do not describe an actuality, but hazard an inference—we are speculating, not honestly describing. But does not Prof. Hackel violate his own law when he says, "Gluma III. nulla, Gluma IV. . . . ."? Surely his fourth glume must become the third when the third is "nulla." The fact is that good inference is the soul of descriptive botany; the question is whether our inference is good. I have no objection to Hackel imagining the suppression of the third glume—neither, indeed, to Kunth imagining the suppression of a flower in its axil. The analogy of "lower" forms, both animal and vegetable, might suggest that the spicula of *Poa* anciently consisted of a number of exactly similar limbs; that the two lower have become with advantage to the fertility of the spicula permanently sterile, while the uppermost glume of the spicula may be pistillate-barren, male, or empty. This is surely preferable to anything that suggests that the "Gluma III. vacua" in *Andropogoneæ* is on its geological course towards becoming a male, and subsequently a perfect, flower.

The real objection, however, to the introduction of a new terminology is (that to the introduction of an improved logical alphabet) that we have to learn both the old and the new, and have extra labour every time we compare a genus in Kunth with a genus in Hackel. To students, the mastering a double system of describing Grasses is confusing and distasteful. A sufficient ground for starting a new system is that the old is so cumbrous or so strongly suggestive of fatally erroneous conceptions that it is imperative to throw it over at all cost. And the question as regards Grasses is (in the judgment of many) open whether that is so.

The description of the 425 species occupies more than 600 pages. The "species" being understood in a Benthamian sense are afflicted with numerous varieties; the species *Andropogon Sorghum* Brotero occupies twenty pages with forty-two vars. (some of these vars. divided again into subvarieties). It is rarely that we gain much by the reduction of an old species to the rank of a variety: if the species can be absolutely sunk in another, we do gain much; but, if it is merely degraded to the rank of a var., we have to write four or five words to name it, instead of three. The author who reduced it to a var. has put us to this extra toil in order that his "species" may be of nearly equal value (a hopeless aim).

The most novel and the most questionable feature in Hackel's volume is in the handling of the subordinate divisions of genera—the subgenera, sections, subsections, &c. Alph. DeCandolle has laid down that, in a genus, let us say, of sixteen species not divided into subgenera or sections, *all* the characters that apply to the whole sixteen species shall be placed in the description of the genus, and none of these characters shall be repeated in the diagnoses of the species, which latter ought to be strictly diagnostic, *i. e.*, separating the species from each other. This plan avoids repetition and looks fair, and Hackel carries it out logically down through all his subdivisions of genera—down to subsubsections and lower. In the lowest group, the diagnosis of a species thus will contain only the trivial characters which distinguish it from the closely-allied few (in Hackel usually 1–5) species in the group; the essential characters of the species will be scattered through the headings of the subsections, sections, subgenera. These headings also, on the Candollean principle (ridden to death), include as much as possibly can be averred of all the species beneath them, *i. e.*, they are as full as possible; for example, one on p. 232 contains 196 words; they frequently contain more than 100 words. If it is wished to check a specimen of *Ischæmum latifolium* Kunth by the book, on turning to p. 236 we find no diagnosis, because the species is the only one in the subsection; to get its diagnosis we add the characters of ‡‡ to those of ** (p. 234), to those of $\beta$ (p. 232), to those of b (p. 211), to those of A (p. 202). It is true that, by this arrangement, repetition has been avoided, and the principle of DeCandolle pushed to its logical limits. To use the book, even in a genus like *Ischæmum*, it is necessary first to draw up on a sheet the characters of all the sections, subsections, &c., so that it may be seen what the different headings are contrasted against. The genus *Andropogon* on this system is so appalling that it may be fairly doubted whether many botanists, before the next monographer of *Andropogoneæ*, will sufficiently master it to work with it in naming plants. The author has in this single case so far condescended as to give a "Conspectus Subgenerum" at the head of the genus; otherwise he has left each botanist to make his own tabular views of the sections, &c. Few experienced herbarium-workers can make much use of Planchon's *Ampelideæ* on taking it up to name thereout a few Vines; it requires to study it a fortnight or so before you can work with it. Hackel's volume is certainly easier to work with than Planchon's; still it is to be feared the volume will be of little use to botanists, except those few who can give up several days to one tribe of Grasses. But for what object has this fearful dislocation of the essential characters of species been submitted to? Merely to avoid repetition! These characters might, in the manner of Kunth, be placed in the diagnosis of each species in four to six lines of print, without a letter of the book being otherwise altered; the book would have been lengthened at most by thirty pages; or the diffuse "descriptions" might have been made three or four lines shorter each, in which case the book would not have been lengthened. Another twenty pages might have been advantageously devoted to "Conspectus Sectionum et Subsectionum."

With the same object of compression, Hackel in general cites only the original authority for each name; he claims thus to have gained space for a full description (the descriptions are often a page long), which may be assumed to contain all the valuable additions made to our knowledge of the species by subsequent (not cited) authorities. It may nevertheless be doubted whether the new plan is an improvement on that adopted by Kunth and most experienced authors. The citation of secondary authorities is some guide to the geographic distribution, and Hackel's *Andropogoneæ* requires every aid in this department. As to the full-page descriptions, few persons will find time to wade through and verify them. The omission to completely reduce Kunth causes trouble in various ways; for example: a species, "*hirta* Linn.," is located by Kunth in Central America and the United States; in the new Monograph, the species "*hirta*" is not recorded further north than Mexico. Then the United States botanists commence writing to Europe to discover "what has been done" with Kunth's United States *hirta*.

With the same object of compression (?), the prepositions and particles are omitted to an extent that loses the reader time. On p. 177 we have a diagnosis, "*P. imberbis:* culmo internodiis hinc sulco profundo exaratis; articulis pilis ipsis 5–6-plo brevioribus apice evanidis laxissime ciliatis; aristâ spiculâ subduplo longiore vel nullâ." It will take many readers anxious thought to discover whether the articuli are $\frac{1}{5}$ or 5 times the hairs, and to construe culmo. The diagnosis does mean "culmi internodiis a sulco profundo in altero latere exaratis; articulis a pilis quam sunt ipsi 5–6-plo brevioribus, &c." So on p. 90 we read, "Racemi bini, digitati, fasciculati," in which, according to the genius of the Latin tongue, we should in English supply "and" between the adjectives; but the word meant to be supplied is "vel." These two cases are not picked as proofs of accidental errors; the Latin is done throughout on this principle. The number of errors in grammar is perhaps not greater than occur in many English botanic works, but the errors are both many and striking for the work of so learned a German; such as (top of p. 189), "Reliqui Spodiopogones Triniani etiam inter Ischæma invenies." (How is etiam to be translated ?) Mere misprints are too numerous. It is curious, in a European (not a German) treatise to find Wallich's "Oude" changed to "Aude"; why Sikkim is spelt with an h is not clear, as the German Atlases usually spell it correctly, "Sikkim," which is the form universally adopted in Botany (Sikkimensis). But these are trifling blemishes (perhaps better left unnoticed) in a work of such magnitude and excellence. The matters above disputed are open questions, and Prof. Hackel is well able to maintain his own view. The serious drawbacks to the botanic value of the work all arise from the fact that the author was unable to visit the herbaria of Western Europe, especially of England; this is especially unfortunate in the case of a tribe abundant in Tropical Asia and Africa. We see numerous Grasses described, from a single example, of which there are large bundles in the great English herbaria. It follows, first, that the area of many species is most imperfectly given; secondly, that Hackel's description is a photograph of a particular form, and does not cover the material already in hand; thirdly, that many species well represented and long known in the English herbaria are not included in the book at all; fourthly, that a vast number of trifling varieties are characterised which a larger series of examples shows not worthy separate notice (much compression might have with advantage been attained here)—they have really no characteristics at all, but such as pass by gradation into the next; fifthly, where Hackel has an authentic example and a good species, he is liable to rely on characters which larger material show to be not essential.

To give any full illustration of these assertions is impossible in a notice of reasonable compass; one instance may be shortly described. A critical series of Indian *Pollinia* is treated (p. 157), and is divided primarily according to the colour of the hairs on the joints of the racemes, which may be white [section *a*] (or in the subsection violaceous), or may be golden [section *b*]. The last species of this series described is *P. velutina* (i. e., *Erianthus velutinus* Munro MS.), of which Hackel had a single specimen authentically named by Munro, and which he describes as having the sheaths and leaves "glaberrimæ." Now, of this species there are two large bundles at Kew; from these it is evident that the colour of the hairs on the joints of the racemes is not an absolute character (nor the degree of hairiness of the sheaths and leaves). The great part of Munro's "velutinus" is *P. quadrinervis* Hackel, with the sheaths and leaves hairy. *P. velutina* Hackel is a Khasi plant, not separable from a golden-haired form of *P. speciosa* Hackel (in Munro's sorting). Hackel has another new species, *P. hirtifolia* (with violet hairs), founded on a single specimen collected "Simla et convalles," which (in Munro's sorting) would be a mere form of *P. quadrinervis*, in which species violet hairs are common. Now, granting that Hackel is right in dividing Munro's single species into four, he can hardly be right as to the characters on which these four are to be maintained. A similar dilemma as to characters arises in *Arthraxon*, a small genus of eight species, which Hackel divides primarily into Triandri and Diandri. He then founds one subspecies placed in Diandri on Wallich n. 8836 the whole of which at Kew is triandrous, as are also the types of two other forms placed by Hackel among Diandri. It may be doubted whether the character derived from the number of stamens is to be relied on, any more than the hairiness of the top of the culm (the character used to subdivide the Diandri).

A great many more doubts could be started concerning the observations and methods in this great work, but its general excellence is such that it will be long before it is superseded. Hackel is admittedly of all living men the right man to monograph Gramina. He has a full grasp of the order both as a whole and in all its details, so that his work is in the best sense conservative—he has not been led away to start a number of new genera, or to give such weight to new characters that the preceding arrangement is so transformed that we cannot find where the species have got to. His volume is an extraordinary testimony to the genius of Bentham; it is marvellous that it should have been possible to follow in all essentials the 'Genera Plantarum' so closely. The good wishes of all botanists must accompany Prof. Hackel in the accomplishment of a task, tremendous indeed, but to him most delightful—the arrangement and description of all known Grasses.

C. B. Clarke.

Under the title of 'Science and Scientists,' the Rev. John Gerard, S. J., proposes to publish a series of six pamphlets dealing in a popular but not unscientific way with the writings of some of the more popular exponents of Darwinism. In the first number, "Mr. Grant Allen's Botanical Fables," Father Gerard has an easy task: and he demonstrates, amusingly enough, the manifest inaccuracies and groundless assumptions on which Mr. Allen's conclusions are too often based. We hope to notice the series as a whole when completed: meanwhile we may call attention to the present instalment, which is published by the Catholic Truth Society, 21, Westminster Bridge Road, S.E., price one penny.

We note with pleasure the first step in the direction of improvement in the bibliographical portion of the 'Annals of Botany.' The "List of Books and Pamphlets" in the most recent issue (dated August, issued late in October) contrasts favourably with its predecessor, and approximates to what such an enumeration should be; and we are not without hope that our further suggestions will be attended to. We note that, although the list is headed "1889 (January to June)," it contains a large number of works dated 1888, such as Stewart and Corry's 'Flora of the North-east of Ireland,' which was noticed in this Journal for September of that year.

## Articles in Journals.

*Bot. Centralblatt.* (Nos. 40, 41).—R. Hesse, 'Zur Entwickelungsgeschichte der Hymenogastreen: *Leucogaster floccosus*, n. sp., (2 plates). — O. Juel, '*Kœniga islandica*.'—(No. 41). T. M. Fries, '*Stenanthus curviflorus*.' — (Nos. 42, 43). P. Kummer, 'Die Moosflora der Umgegend von Hann.-Münden.'—(No. 43). C. Councler, 'Aschenanalysen verschiedener Pflanzen und Pflanzentheile.'

*Bot. Gazette* (Sept.).—H. M. Richards, 'Uredo-stage of *Gymnosporangium*' (1 plate).—H. L. Russell, 'The Temperature of Trees' (1 plate).—T. Morong, 'Paraguay and its Flora.'

*Botanische Zeitung* (Sept. 27). — J. H. Wakker, 'Bau und Dickenwachsthum des Stengels von *Abrus precatorius*' (1 plate).—(Oct. 4, 11, 18). B. L. Robinson, 'Beiträge zur Kenntniss der Stammanatomie von *Phytocrene macrophylla*.'

*Bull. Soc. Bot. France* (xxxvi.: Comptes rendus 5: Oct. 1).—A. Seignette, 'Sur les tubercules du *Spiræa Filipendula* et du

*Veratrum album.'*— —. Émery, 'Épanouissement, veille, et sommeil des périanthes.'— E. Cosson, *Sporobolus Tourneuxii* & *S. lætevirens*, spp. nn.—H. Hua, *Anemone nemorosa* var. *anandra.*—T. Caruel, 'Le "Flora Italiana" et ses critiques.'—L. Mangin, 'Sur la membrane du grain de pollen mûr.'—J. Vallot, 'Le Rabougrissement des arbres des cultures japonaises.' — P. Maury, 'Procédés japonais pour obtenir des arbres nains.' — E. Bastit, 'Comparaison entre le rhizome et la tige feuillée des Mousses.' — L. Daniel, 'Structure anatomique comparée des bractées florales, des feuilles verticales, et des feuilles engainantes.' — J. Poisson, 'Sur un Champignon rapporté au genre *Mylitta.*' — —. Hy, 'Présence in Anjou de l'*Equisetum littorale.*' — —. Luizet, '*Aceras anthropophora* × *Orchis militaris.*'—A. Chabert, 'Sur la Flore d'Algérie' (*Allium Tourneuxii*, *Cladium Durandoi*, spp. nn.). — —. Émery, 'Sur les variations de l'eau dans les périanthes.— —. Doumet-Adanson, 'Sur un Sapin hybride.' — P. Brunard, 'Champignons des environs de Saintes.'— C. Degagny, 'Origine nucléaire du Protoplasma.'

*Bulletin Torrey Bot. Club* (Sept.).—E. L. Scribner, 'N. American *Andropogoneæ.*'—(Oct.). N. L. Britton, Rusby's S. American Plants (*Dalea boliviana*, *Coursetia boliviana*, *Astragalus capitellatus*, *Desmodium Mandoni*, *D. Yungasense*, spp. nn.). — A. F. Foerste, '*Nasturtium lacustre*' (1 plate). — J. F. James, 'Colour as a distinguishing feature.' — T. D. A. Cockerell & N. L. Britton, 'Classification of slight varieties.'—T. Morong, 'The Mandioca.'

*Gardeners' Chronicle* (Oct. 19).—*Sansviera subspicata* Baker, n. sp. —'Proliferous Raspberry' (figs. 62–64).

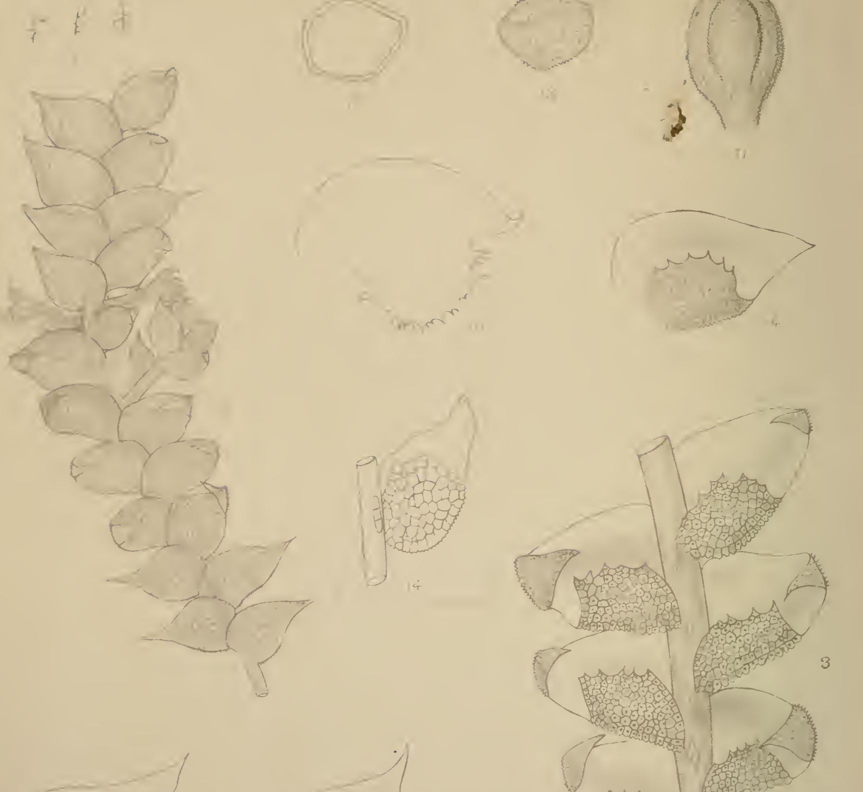
*Journal de Botanique* (Sept. 1).— A. Franchet, 'Deux nouveaux genres de Bambusées' (*Glaziophyton* and *Microcalamus*).—P. Hariot, 'Sur le genre *Cephaleuros.*' — (Sept. 1, 16; Oct. 16). E. Heckel, 'Recherches physiologiques sur la germination des graines.'— (Sept. 16). A. Franchet, 'Sur le genre *Guaduella.*'— —. Hy, 'Sur les procédés pour représenter la distribution geographique des plantes.'—(Oct. 16). J. Costantin, 'Culture du *Nyctalis asterophora.*' —P. Maury, 'Le tracé des Cartes de Géographie botanique.'

*Nuovo Giorn. Bot. Ital.* (Oct. 10).—E. Armitage, 'Appunti sulla flora dell' isola di Malta.'—A. Terracciano, 'La flora della Basilicata.' —G. Cuboni, 'Le forme teratologische nei fiori di *Diplotaxis erucoides.*'— C. Massolongo, 'Una nuova varietà di *Frullania dilatata.*' —A. N. Berlese, 'Note intorno al *Polyporus hispidus.*'—U. Martelli, '*Taphrina deformans.*' — G. Arcangeli, 'Sopra alcune Epatiche raccolte in Calabria.'

*Oesterr. Bot. Zeitschrift* (Oct.). — H. Zukal, 'Ueber die Entstehung einiger *Nostoc*- und *Glœocapsa*-Formen.' — J. Freyn, 'Plantæ Karoanæ.' — V. v. Borbás, 'Ueber Arten der Gattung *Tilia* mit sitzenden Bracteen.' — F. Krasăn, 'Kalk und Dolomit in ihrem Einflusse auf die Vegetation.'

*Scottish Naturalist* (Oct.).—J. Stevenson, Notice of M. J. Berkeley. J. W. H. Trail, 'Revision of Scotch Discomycetes.' — A. Bennett, *Nitella batrachosperma* in Britain.

Tab. 292.



R. Morgan lith
W H P. del.

West, Newman imp

Lejeunea Rossettiana

# A NEW BRITISH HEPATIC.

By W. H. Pearson.

(Plate 292.)

Lejeunea (Cololejeunea) Rossettiana Massal. — "*Dioica?* intricato-cæspitosa, minuta, flavo-viridis, habitu et magnitudine *Lejeuneam calcaream* omnino referens, *examphigastriata; caule* subdichotomo, vel subpinnatim diviso, subtus plus minus radicelloso; *foliis* dense imbricatis, convexulis, ovatis, apice magis minusve longe attenuato-acuminatis (rarius solum acutis), acumine plerumque inflexo, margine facieque externa eximie echinatis; *lobulo* folio minore subtriplo, ad plicam tumido, margine subrotundato, inæqualiter valideque spinuloso, tota superficie (externa) ad foliorum instar echinata (appendice styliformi inter lobulos et caulem nulla); cellulis fol. lobulorumque leptodermibus; polygonalibus in papillam conicam sat alte prominentibus; *perichætiis* subsessilibus, *foliis involucralibus* conduplicato-bilobis, margine dentatis, superficie echinatis, lobo dorsali acuto, ventrali vulgo minore et obtuso; *colesula* ad speciem stipitata, pyriformi, apice pentagona, ore mucronata, tota face mucronata; infl. ♂?." Massalongo in Nuovo Giorn. Bot. Ital. vol. xxi. p. 487, Luglio 1889, *emend.*

Dioicous, minute, growing in closely-matted tufts of a yellowish green colour, often growing in company with *Lejeunea calcarea*, which it resembles in size and habit. Stems subdichotomous or subpinnate; rootlets of a pale colour, proceeding from the base of each leaf, or obsolete. Leaves imbricate, patent at an angle of 50–60°, somewhat convex, ovate, with their apices more or less attenuate-acuminate (rarely only acute), usually incurved, margin denticulate, exterior surface echinate; lobule from half to a third smaller than the leaf, tumid at the keel, then nearly flat, margin subrotund, not incurved, unequally dentate-spinulose, exterior surface echinate like leaves, cells very minute, 4–5 and 6-angled, walls distinct, without trigones, papillæ conical, one to each cell; styliform appendage to the base of the leaf wanting. Folioles none. Female flowers on short branches, subtended by an innovation; bracts similar to the leaves, only larger; lobule more finely dentate-spinulose; bracteole wanting. Perianth projecting more than half beyond the bracts, oval to pyriform, muricate, upper portion obtusely 5-angled. Male flowers unknown.

Measurements.—Stems about 5 mm. long, ·1 mm. diam.; leaves ·45 × ·25, lobule ·225 × ·15 mm., ·45 × ·275, lobule ·225 × ·15 mm.; cells ·0125 mm.; papillæ ·0125 long × ·01 mm. at the base; bract ·5 × ·25, lobule ·25 × ·15 mm.; perianth ·6 × ·45 ·55 × ·4 mm.

Hab.—Growing on limestone rocks, amongst mosses, and often intermingled with *L. calcarea*. England: Limestone Cave, Gordale, 10th July, 1857; 3rd July, 1872, *Dr. Carrington*. Miller's Dale, Jan. 1882; Winnats, March, 1882; Ravensdale, May, 1884; Derbyshire, *Mr. G. A. Holt*. Ireland: Near Dublin, 1830, *Dr. Taylor*. Mucross Demesne, Killarney, May, 1861, *Dr. Carrington*.

Obs.—Differs from *Lejeunea calcarea* Lib. by its dioicous inflorescence, more opaque texture, slightly larger size, leaves a little more spreading, echinate lobule with its margin much more dentate-spinulose, and not incurved, as in *L. calcarea*, whose margin cannot be seen without dissection, and by the entire absence of the styliform appendage usually found between the stem and the leaf of *calcarea*. This distinct species, first discriminated by the Italian botanist, Prof. Massalongo, from specimens collected in Italy by Dr. Rossetti, has been confounded by British botanists with *L. calcarea*, but from which, by the above-mentioned characters, it is seen to be abundantly different. Dr. Carrington has been kind enough to place at my disposal his extensive collection of *Lejeuneæ*, and I find that the original specimen of Dr. Taylor's *Lejeunea echinata* is none other than the species of Prof. Massalongo, and is accurately figured in Hooker's 'British Jungermaniæ,' Suppl. t. iii., as *Jungermania hamatifolia* var. *echinata*.

Dr. Spruce informs me that the type-specimen of Madam Libert's species is the true *L. calcarea*, having the styliform appendage, smooth lobule, &c.; and all specimens distributed in the various Exsiccata I have had the opportunity of examining (G. et R. Hep. Eur. 46, 283, 323, 365; Crypt. Bad. 474; Massal. Hep. It. ven. 15) are true *calcarea*, with the exception of those in Sulliv. Musc. Alleghan. 275, and Aust. Hep. Bor. Am. 99, which are to be referred to *Lejeunea Biddlecomiæ* Aust. Herb.; and the specimens named *Lejeunea echinata* in Drummond's 'Mosses of North America,' which belong to quite a different species.

I have to thank Dr. Carrington for the loan of specimens, and Dr. Spruce for help in the preparation of the paper and the notes printed, by an accident, in the last number of this Journal.

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Explanation of Plate. — Fig. 1, Plants, nat. size. 2, stem, antical view, × 24. 3, portion of stem, postical view, × 64. 4—7, leaves, × 64. 8, portion of leaf, × 290. 9, papillæ, × 290. 10, bract, × 64. 11, perianth, × 31. 12, cross-section of perianth, × 31. 13, apex of perianth, × 31. 14, leaf of *L. calcarea* Lib., showing styliform appendage (after Massalongo).

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## *ARENARIA GOTHICA* Fries, IN BRITAIN.

By William Whitwell.

My brief note in the October 'Journal' reported the discovery of *Arenaria gothica* Fries, at Ribblehead, in the vice-comital division of Mid-West Yorkshire, by Mr. Lister Rotheray, of Skipton, on the 12th of June last. Mr. Rotheray noticed, near the Ribblehead railway station, two patches of white flowers of a kind not before known to him, which proved on examination to be an *Arenaria*, but the species of which he could not determine, though he suspected it to be *ciliata*. He collected a number of specimens, both at the time of his first observing them and on his return to the station at the close of the day's excursion.

The plant was afterwards submitted for the opinions of

Prof. Babington and of Mr. F. Arnold Lees, the author of the 'Flora of West Yorkshire.' Prof. Babington named it *Arenaria norvegica* Gunn., as also at first did Mr. F. A. Lees. The latter informed me of the "find," in a letter dated July 17th. In two days this letter was followed by another, and Mr. Lees therein expressed a doubt whether, after all, *norvegica* was a true determination, pointing out certain features distinguishing the Ribblehead plant from *norvegica* as described in books, and from *ciliata*. Two specimens were enclosed in the second letter, which I was asked to take to Mr. Arthur Bennett, of Croydon, for his opinion upon them. I went to Croydon on the evening of the same day—July 20th—and had a long conversation with Mr. Bennett, who seemed at first to think that the plant was *norvegica*. Leaving the specimens, I went for an hour's ramble, and on returning to Mr. Bennett's house was met by him with the pleasant announcement that they were undoubtedly *Arenaria gothica* Fries, and that thus a new plant, of great interest, had been added by Mr. Rotheray to the British Flora. He had compared them with Fries' original description and with authenticated Gothland specimens sent to him in 1882 by Dr. Nilsson.

Mr. Arnold Lees visited Ribblehead, in company with Prof. Jefferson, of the Yorkshire College, on the 11th September, and found Mr. Rotheray's locality—hundreds of plants growing there—and also a second locality, with three plants only noticed then (but the day was unfavourable to careful and extended search), between 300 and 400 yards away. Both are roadside spots—of *made* ground, covered with small stones (limestone and slaty fragments) of the size of a walnut and under. The companion growth was of *Arenaria serpyllifolia*, *Sagina nodosa*, small *Capsella*, with a little grass and moss; no introduced plant was near. The first spot is within the railway precincts but below a high embankment and well away from its base. The second is on the opposite side of the railway, and the embankment effectually prevents any conveyance of seeds from one point to the other by the wind. The station buildings, a porter's cottage, and the Ribblehead Inn, are near at hand. This particularity of localisation may be dangerous to the plant, but it is necessary for the proper discussion of the question of its indigeneity or otherwise. The roads were made about fifteen years ago. The neighbouring natural surface is partly peat-moss and partly stony moorland.

Ribblehead is a station which stands at a height above the sea of about 1000 ft, upon the great Midland Railway gradient. No foreign cargoes or ballast are delayed or unloaded there. My friend, Mr. Arnold Lees, is consequently of opinion that the plant is not a mere casual. It grows in the only kind of spot in the neighbourhood likely to be suitable to it. He hopes another year to be able to trace the source of the road-metal used about the station, and possibly so, and by further exploration of the district, to track the species to its original Yorkshire home, if such there be. That it is really native to the Ribblehead region he is confident, unless it has been knowingly, deliberately introduced there.

Only a botanist, however, would be likely to understand the value, or to possess the seeds, of so rare and little-known a form as *gothica* or *norvegica*. And surely, now that the importance of the study of distribution is so fully recognised, no botanist lives, capable of committing the scientific crime of creating false facts to lead investigators astray. Yet there are traditions, at any rate, that such things have been,—and we know how even high-minded Robert Dick, of Thurso, confused somewhat the botany of his home-county, by transplanting favourite plants from their original stations to others like them, supposing that in so doing he was serving truly the interests of his fellows.

I have said "*gothica* or *norvegica*" above, because Mr. F. A. Lees holds the view—as does Mr. J. G. Baker—that *A. norvegica*, *ciliata*, and *gothica*, really are one species; and he has expressed the idea that seeds of the Unst *norvegica*, sown in a high, dry (comparatively), and barren spot like that at Ribblehead, would originate a series of plants less succulent, more tufty, with more drawn-out leaves, increased apiculus, and longer peduncles, corresponding to the *gothica* form. He negatives *ciliata* seeds as possible originals, because of the absence of the characteristic ciliation and the greater fleshiness,—this, too, on limestone like that of Ben Bulben, at an equal height, and in a spot where, as at Ben Bulben, other plants tend not only to preserve but to increase the growth of hairs and cilia.

Mr. Arthur Bennett, with characteristic kindness, has obligingly given me the following very full particulars of the synonymy, bibliography, distribution, and distinctive features of *A. gothica*.

ARENARIA GOTHICA Fries, Mant. ii. pp. 33—34, 1839, et Summ. Veg. Scand. p. 158, 1846.

*A. gothica* Fr., Flor., Dan. Supp. fasc. i. t. 15, 1853.

*A. gothica* Fr., Zetterstedt, Om våxt på Vestergötlands, p. 44, 1876.

*A. ciliata* L. *β.*, Wahl. Flor. Suec. p. 295, 1831, in Kongl. Vet.-Acad. Handl. (Stockholm).

*A. ciliata* L. *β.* Wahl., Nyman, Bidr. Gottlands Fl. p. 141, 1842.

*A. ciliata* L. *β.* ? *fugax* Gr. et Godr. Fl. Fr. vol. i. p. 259, 1848.

*A. ciliata* L. *β. gothica* Fr., Eisen & Stuxberg, Gotlands Faner. och Thall. p. 29, 1869.

*A. gothica* Fr. Hartm. H. Skan. Fl. ed. 11, p. 243, 1879.

Distribution:—Sweden: In the I. of Gotland; Kräklingbo, about halfway on the road from Hiedeby, going towards the north-east side of Thorsbergen; Visby; Fleringe near Harn; Fädon; on the mainland at Kinnekulle, in West Gothland. Switzerland*: Borders of the Lake Joux. England; Ribblehead.

First found by Rosen (Gotland), and again by Hr. Högberg in 1840.

"ARENARIA GOTHICA caulibus e basi ramosa erectis teretibus simplicibus, alis nudis, foliis ovalibus lanceolatisque abrupte acuminatis glabris, basi attenuata subciliatis, sepalis carinatis petalis capsulaque ovata brevioribus.—Herb. Norm. v. No. 34.

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* Named as France in Gr. and Godr., but the lake is clearly in Switzerland, Canton Vaud.

*A. ciliata β.* Wahl. Suec. n. 509, *α.* Hartm. Scand.—utroque loco quoad spec. Westrogoth. et Gottland. In petris calcareis Vestrogothiæ, nempe in Kinnekulle in *Martorps Klint*, etc.; etiam Gothlandiae lecta." Fries, Mant. ii. p. 33.

Koch, 'Syn. Fl. Germ. et Helv.,' ed. 2, p. 128 (1843), observes:—"*Arenaria gothica* Fries, Nov. Fl. Suec. mant. ii. p. 33, in dit. nostræ nondum lecta, est species quasi intermedia inter *A. serpyllifoliam* et *A. ciliatam.* Radicem, habitum et folia *A. serpyllifoliæ*, flores vero *A. ciliatæ* habet."

Mr. Bennett remarks that this plant is to be compared with *A. ciliata* L. and *A. norvegica* Gunn., to which, with the continental *A. multicaulis* (L.) Wulf., it is closely allied. It would probably have been ranked, at the most, as a sub-species by Dr. Boswell. Nyman, in his 'Bidr. till Gottlands Flora,' makes it a var. of *ciliata*, but in his 'Conspectus Fl. Europ.' p. 115, it stands as a species next to *serpyllifolia*, and with two species between it and *ciliata*, of which *norvegica* is there made a sub-species. With *A. serpyllifolia* it could scarcely be confounded. From *ciliata* it may be separated by the leaves being sparser, and not appressed to the stem in the lower part (as they usually are in *ciliata*); the veins are not nearly so prominent; the armature of the stem is much more like that of *serpyllifolia* than *ciliata;* the capsules are larger and longer, and the seeds are larger. From *norvegica* it may be known by the whole surface of the plant being more hairy, with transparent gland-like hairs, the margins of the leaves more ciliated, with curved hairs; the seeds more compressed, smaller, and not so dark (or perhaps the present specimens have not fully ripened?).

Grenier and Godron's description of their "*β. ? fugax*" is "Racine annuelle or bisannuelle, sans tiges stériles fasciculées; pétales égaux au calice; styles plus courts; calices fructifères plus gonflés. *A. fugax* Gay in herb." The term "without barren stems" must be held in the Gotland plant anyhow, and possibly in the others, to be only a partially true one: small stems do occur which in July show no signs of flowering, though they might do so by September, and I (Mr. Bennett's words are still quoted) have seen no late autumnal states of any of the plants. It would be well if seeds of all four forms could be sown in the same soil and grown under similar conditions, to prove the permanence of the variations or their loss by reversion to what was probably the original type, *A. ciliata.*

Two of the specimens from Ribblehead sent to me by Mr. F. A. Lees show each a large number of long slender shoots crowned by flowers, springing from between the short-stemmed crowded ripe capsules of the earlier growth. The others bear occasional flowers as well as capsules, but these seem to be not so much a special second growth as straggling late members of the first.

Recurring to the question of *habitat*, Dr. N. H. Nilsson, of Lund, Sweden, informs Mr. Bennett that he has gathered *A. gothica* Fries, at 25 to 30 feet above the sea-level, growing between stones and on calcareous rocks, with all the common Gotland plants, such as *Asperula tinctoria*, *Jasione montana*, *Scleranthus*, *Potentilla collina*, *Cerastium glutinosum*, *Poa bulbosa*, *Melica ciliata*, Sedums, &c.

At the time of the discovery of the plant in June it was in full flower. When Mr. Lees visited Ribblehead it was in abundant, mostly ripe, fruit, though, as already noted, still bearing occasional flowers, and with, in at least two instances, luxuriant blossoming upon a second crop of stems. Some of the specimens attained a height, or spread, of 2½ inches from the base of the stems. In these more elongated ones the stems were mostly fewer than in the others, and usually becoming much branched upwards. But the majority did not exceed 1½ inch. and were densely tufted, branched from the base itself.

Mr. Arthur Bennett suspects the presence of *A. gothica* near Grasmere Lake, in Westmoreland. On the occasion of my first visit to him with the Ribblehead *Arenaria*, he showed me a fragment of an unknown plant which came to him in a gathering of *Potamogeton obtusifolius*, made at Grasmere by Mr. Roper, of Eastbourne. While we were examining the *A. gothica* together, he detected a likeness between the unidentified fragment (a barren shoot only) and the specimens before us. Mr. Martindale has been good enough, at his request, to search part of the ground about the lake for *A. gothica*, but his quest has hitherto been in vain.

Since I wrote the foregoing pages, Mr. J. G. Baker has favoured me with the information that he also visited the Ribblehead locality in September, finding it easily from Mr. Rotheray's directions. He says:—"The locality is not satisfactory as regards nativeness. It is a road close to the railway station. But this is not a plant likely to have been introduced, and I expect it will be found on some of the neighbouring hills." On the question of the comparative rank of the plant Mr. Baker is very explicit:—"I have now carefully compared it with our (Kew) series of neighbouring forms. The conclusion I have come to is, that *fugax*, *multicaulis*, *norvegica*, and *gothica* are mere varieties of *ciliata*. Type *ciliata* is very widely spread. It extends from Greenland, Spitzbergen, and Nova Zembla, southward through the Alps, Carpathians, and Pyrenees, to Central Spain, North Italy, and Transylvania. *Multicaulis* and *norvegica* I make to be varieties told off in high latitudes and altitudes; *fugax* and *gothica* annual lowland varieties. Some of the Ribblehead specimens are undistinguishable from *norvegica*, some from *gothica*. Distribution of the collective plant in Britain is very curious."

Still later, I have received an interesting letter from Mr. N. E. Brown, of Kew. He has carefully examined the Ribblehead plant with Fries' authentic specimens and his original description of *A. gothica*, and Gunneri's original description and figure of *A. norvegica*. He concludes that *gothica* and *norvegica* are but varieties of *ciliata*. The Ribblehead specimens agree "to a hair" with the specimens and description of *A. gothica*, differing from *A. norvegica* in having the leaves *ciliate at the base* and in being altogether more distinctly puberulous on the stems. The sepals also are distinctly carinate as described by Fries, whilst he says those of *A. norvegica* are 3-nerved, but this character requires to be checked by living specimens of both plants, as some dried specimens of *norvegica* also appear to have carinate sepals. "Thus far it would seem to be *A. gothica*, but Fries states that after ripening the seed the whole plant of *gothica* dies and disappears, whilst *norvegica* is perennial. The question therefore is, Is the Ribblehead plant annual or perennial? If it prove annual, we may accept it as being *A. gothica;* but if it prove perennial, it seems to me that we have a plant possessing all the structural characters of *gothica*, coupled with the perennial habit of *norvegica*, and that we should look upon it as one plant with two habits."

# THE DISAPPEARANCE OF BRITISH PLANTS.*

*Second Report of the Committee, consisting of* Mr. A. W. Wills (*Chairman*), Mr. E. W. Badger, *and* Professor Hillhouse, *for the purpose of collecting information as to the Disappearance of Native Plants from their Local Habitats.* By Professor Hillhouse, *Secretary.*

The Committee has given its attention in the first instance to Scotland, and appends hereto such portion of the materials placed at its disposal as, for any reason, it considers desirable to publish. It has excluded a considerable number of plants of little interest, and especially such as the records show to be recent introductions, casuals, escapes, &c., the loss of which is only a return, therefore, to an earlier, but still recent, state. There is little doubt that the list, even thus restricted, will be considerably amplified hereafter.

The plants recorded are numbered in accordance with the 'London Catalogue,' ed. 8, in which the distribution census of each plant will be found. Nearly all of the records are on the authority of some competent botanist resident in the locality, and whose initials, or some distinguishing initials, are appended. As has been pointed out by more than one correspondent, scarce plants occasionally well-nigh disappear in particular seasons, and hence the records of other than frequent visitors are not fully reliable.

The attention of botanists is particularly drawn to the records under the numbers 52, 264, 374, 406, 570, 575, 687, 910, 932, 993, 1018, 1020, 1478, 1695, and 1772, as giving examples of divers ways, often very curious and interesting, in which plants can become extinct.

The attention of the Committee's correspondents has been in the main confined to complete or threatened extinction; but in addition to this there is a general consensus of opinion that the rarer and more conspicuous Alpine plants are less abundant than they used to be. Amongst the localities specially mentioned are Clova and Ben Lawers; such plants (in addition to those given in the list) as *Saxifraga cernua*, *Alsine rubella*, *Gentiana nivalis*, &c., are notably less frequent than twenty years ago. Strange rumours have been communicated to the Committee as to the disappearance of plants from accessible habitats within the range of some of the deer "forests," but it is unable to verify these statements. Most of the correspondents agree, however, that the injudicious action of botanists themselves, and of botanical exchange clubs, has been a potent factor in the changes which have taken place. It is too often forgotten that the very rarity of a plant is the sign, and in great degree also the measure, of the acuteness of its struggle for existence, and that when a plant is in a state of unstable equilibrium with its environment a small disturbance may have disproportionately great effects.

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* Read at the British Association Meeting (Section D.) 1889.

It will be observed that the "dealer" and "collector" figure largely, especially in connection with the disappearance of ferns. Thus one of the correspondents indicates (and offers to name) a dealer who has extirpated, or well-nigh extirpated, a considerable number of species in the district of Dumfries, and whose conduct he had brought under the notice of the local Natural History Society, of which the correspondent is secretary. "He had also removed and sold almost all of the plants of *Nymphæa alba* from the lochs of this district before discovery; but now I am happy to say he is forbidden access to any estate in this district under penalty of prosecution for trespass." The attention of Natural History Societies may well be drawn to this case, as it happily illustrates at the same time one phase of the disease and a cure.

"Summer visitors" do not appear to be directly responsible for much damage, as their wanderings are probably over too restricted an area to produce much effect. There is no doubt, however, that they provide the larger portion of the customers of the "collector," and so are indirectly answerable for his ravages. The temptation to bring home some rare and beautiful fern, like *Aspidium* (*Polystichum*) *Lonchitis*, as a relic of a northern trip, is too great to be resisted, though something may possibly be done by persuading tourists that equally good plants, taken up with all proper care, and at a season when transplanting is not dangerous, can be obtained from any great fern nursery, for a price which is practically lower, often much lower, than that charged upon some Highland railway platform or roadside.

The Committee feels, however, that neither local dealers nor their customers are as a rule amenable to any ordinary appeal or to sentimental considerations, and would suggest therefore that the local Natural History Societies or Field Clubs should keep careful guard over any rare plants to be found within their respective spheres of action, and by appeal to the owner, or in other preferable way, should endeavour to effect their preservation. At the same time many correspondents draw attention to the insertion by gardening periodicals of the advertisements of collecting dealers, and express the hope that the amount of revenue derived from these advertisements is not so great as to negative the possibility that the gardening journals may be induced, by discontinuing their insertion, to strike a heavy blow at a process which is depriving many districts of our land of one of their chief natural beauties.

39. *Trollius europæus*, L. Extinct in Mid-Aberdeen, &c. (W. W. and J. M.).

52. *Nymphæa alba*, L. Almost extirpated from lochs in the district round Dumfries by a dealer (J. W.). Has disappeared from the district of Birnie, near Elgin, by drainage (G. and T. A.).

58. *Meconopsis cambrica*, Vig. Believed to be extirpated from banks of Water of Leith and Currie, Midlothian (G. A. P.).

59. *Glaucium flavum*, Crantz. Recorded in 1776 for seashore at Bay of Nigg, near Aberdeen, but not since 1800 (J. W. H. T.). Found sixty years ago at Montrose Links; not now (R. B.).

184. *Dianthus Armeria*, L. Occurred, though not abundantly, in rough pasture near Glencarse Station, Perthshire; has been entirely destroyed through the cultivation of the ground (F. B. W.). This was one of its most northern stations.

207. *Lychnis Viscaria*, L. Blackford Hill, Midlothian; now very rare (G. A. P.). Arthur's Seat, Edinburgh; supposed to be extirpated (G. A. P.).

208. *Lychnis alpina*, L. Is now becoming rare in its habitats on Clova Mountains (G. A. P.).

263. *Hypericum perforatum*, L. Formerly grew plentifully near Cromarty Nursery, but has ceased to exist, as the ground is now used for agricultural purposes (T. A.). This was one of its most northern stations.

264. *Hypericum quadrangulum*, L. Has wholly disappeared from the vicinity of Fortrose, Ross-shire, having been eaten by cattle or trodden down (T. A.). This was one of its most northern stations.

368. *Lotus pilosus*, Beeke. Extinct round Alford, Mid-Aberdeenshire, from cultivation (W. W.).

374. *Oxytropis uralensis*, DC. Grew in abundance near Invergordon, Ross-shire, but on one occasion the medical man of the town saw a man digging it up with a trowel, and it is now extinct (T. A.).

375. *Oxytropis campestris*, DC. Rocks at Bradoony, Clova; now very rare; extirpated from all accessible parts of the rocks (G. A. P.).*

406. *Lathyrus niger*, Wimm. Has well-nigh disappeared from its station at Killiecrankie Pass owing to the late guide to the Pass showing it to all tourists. An appeal to the proprietor might save the rest of the specimens, of which very few stations exist (F. B. W.).

501. *Agrimonia Eupatoria*, L. Becoming very scarce in Glen Urquhart, Inverness-shire (Gr.). This was one of its most northern stations.

525. *Pyrus Aria*, Sm. One specimen only (? *P. fennica*, L.) known in Arran; now lost through injury (G. A. P.). Lost also from one or two other stations on the Western Highlands, and now very rare in Scotland.

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* [The locality of this plant is Glen Dole—not Bradoony, which is at the mouth of Glen Dole. It was not "extirpated from all accessible parts of the rocks" during last summer, though a well-known botanist did his best to make the above statement true.—GEO. MURRAY.]

570. *Sedum reflexum*, L. Found freely on a wall at Birnie, Elgin; disappeared through repairs (G.). Not native.

575. *Drosera anglica*, Huds. Extinct in Kincardine (M.). Extinct round Alford, Mid-Aberdeen, through drainage (W. W.).

577. *Hippuris vulgaris*, L. Extinct round Alford, Mid-Aberdeen, but still appears on the borders of Banffshire.

611. *Eryngium maritimum*, L. Found in the early part of the century on the sandy coast at St. Cyrus, near Montrose, and at St. Fergus, Peterhead, but extinct in both localities from unknown causes (J. W. H. T. and R. B.).

687. *Linnæa borealis*, Gronov. Has been cleared from near Dingwall, Ross-shire, owing to the wood in which it grew having been cut down and the ground cultivated (T. A.). Formerly grew at Kingsmills, but has been destroyed through cultivation (G. A., *fide* T. A.). These are two of the most northern British stations.

812. *Silybum Marianum*, Gaertn. Has gone from the rocks near Tarbet-ness Lighthouse, Ross-shire (D.). This plant is very rare in Scotland.

887. *Lactuca* (*Mulgedium*) *alpina*. This plant was found (probably abnormally) on the Coreen Hills at about 700 feet, but is now extinct (W. W.).

910. *Vaccinium Oxycoccos*, L. Formerly grew in a piece of mossy land on the uplands north of Mealfourvouny, a hill of Old Red Sandstone conglomerate above 3000 feet, but whether the plants were of recent introduction or last survivors, they have disappeared (Gr.).

926. *Phyllodoce taxifolia*, Salisb. (*Menziesia cærulea*). The only British habitat of this plant is the Sow of Athol, and it has now been nearly extirpated, for sale (K. and F. B. W.). The habitat is within sight of a gamekeeper's house, so that its protection would be easy if the Duke of Athol, the owner, could be moved to that effect.

929. *Pyrola media*, Sw. Has disappeared from White Hills, Colvend, Kirkcudbrightshire, through sheep grazing (J. M. A.).

932. *Moneses grandiflora*, Salisb. (*Pyrola uniflora*, L.). Extirpated from Woodhead Hill, Traqueer, Dumfriesshire (J. W.). Once not uncommon on the Muirhead of Scone; now very rare, from extirpation by botanists and others (F. B. W.). Formerly abundant within four miles of Forres; now extirpated; also from the wood at Brodie, near Forres, from the wood being cut down, and from Coul Woods, near Strathpeffer. It is also disappearing from Rothiemurchen, in this case from the rapacity of collectors (K.).

945. *Primula scotica*, Hook. Marsh near Edinburgh, Pentland Hills; practically extirpated (G. A. P.).

984. *Asperugo procumbens*, L. Has not been found for some years near the village of Balnahuish, on the Dornoch Firth (D.). This was its most northern station.

993. *Mertensia maritima*, Don. Shingle at Bay of Nigg, Aberdeen; almost extirpated from shingle being removed to form concrete blocks used in building a pier some years ago (J. W. H. T.).

1006. *Echium vulgare*, L. Nearly extinct, through cultivation, in the Black Isle, between Inverness and Fortrose, Ross-shire (T. A.).

1018. *Atropa Belladonna*, L. Has disappeared from Renlop Abbey, near Birnie, by extraction, on account of the accidents it had caused (G.). Has not been seen for some years at the Old Kutt, near Ganlude (T. A.). This eliminates two of the few Scottish stations.

1020. *Hyoscyamus niger*, L. Appeared in two or three places in the neighbourhood of Avoch, a fishing village on the Moray Firth, but disappeared in a few years. Informant "thinks it would come up again if the ground were deeply trenched. Some years ago an old elm was blown down and the root blasted, and for two succeeding summers *H. niger* grew luxuriantly in the hole caused by the tearing up of the root of the tree" (S. R. *fide* T. A.).

1092. *Utricularia vulgaris*, and 1094, *U. minor*, L. Extinct in Central Aberdeen (J. M. and W. W.).

1161. *Ajuga pyramidalis*. Has disappeared from In. Achilty, Dingwall, Ross-shire (T. A.).

1424. *Paris quadrifolia*, L. There is one station near the town of Inverness; nearly extinct, through the publicity of its habitat, this being one of the chief resorts of the population (T. A.). This is one of its most northern stations.

1431. *Juncus balticus*, Willd. Lock of Park, and Links north of Aberdeen; never plentiful, and not seen for some years. Cause of disappearance doubtful (J. W. H. T.).

1457. *Sparganium ramosum*, Curtis; *S. simplex*, Huds.; *S. affine*, Sch.; and *S. minimum*, Fr. All apparently extinct in Mid-Aberdeen (W. W.).

1478. *Scheuchzeria palustris*, L. The only Scottish station for this plant, a marsh near Methven (known botanically as "Methven bog"), has been lost; perhaps from the outlet becoming blocked, so that more water collected than the plant could stand, but more probably from the settlement there of a large colony of about 3000 black-headed gulls, the result being the destruction of all but the rankest vegetation (chiefly *Carex ampullacea*). Very careful searching during the last three years has failed to show a trace of the plant (F. B. W.).

1590. *Carex limosa*, L. Has disappeared from Maxwell-town Loch, Kirkcudbrightshire, through drainage (J. M. A.).

1695. *Melica uniflora*, Retz. Is not now found by the side of the burn at Golspie, Sutherland, probably from the hollow, caused by the upturned stool of a large tree which has been blown over, draining the spot where it grew (J.). This was its most northern Scottish station.

1766. *Cryptogramme crispa*, R. Br. (Parsley fern). Extirpated from several localities in the vicinity of Dumfries (J. W.). Abundant thirty years ago on an ancient hill-fortress near Brechin; now extirpated by traders (R. B.).

1772. *Asplenium viride*, Huds. Nearly extinct in district of Black Isle, between Inverness and Fortrose, through drainage and cultivation (T. A.). Has been extirpated from its old habitats in Glen Urquhart, Inverness-shire, by an itinerant fern-collector who squatted in the neighbourhood and took all he could find; but new habitats have been discovered (Gr.).

1773. *Asplenium Trichomanes*, L. Not now found in the woods of Knockespock Clatt, Mid-Aberdeen (W. W.).

1776. *Asplenium germanicum*, Weiss. Nearly eradicated from Stenton Rock, near Dunkeld (F. B. W.).

1777. *Asplenium septentrionale*, Hull. Probably extirpated or nearly so, from Arthur's Seat, Edinburgh (G. A. P.). Nearly eradicated from Stenton Rock, near Dunkeld (F. B. W.).

1779. *Athyrium alpestre*, Milde. Now very rare in Clova Mountains and mostly in inaccessible places (G. A. P.).

1781. *Ceterach officinarum*, Desv. Almost extirpated from Orchardtown Tower, Kirkcudbrightshire, by fern-hunters (J. M. A.). Used to grow on the walls of Drumlanrig Castle, one of the seats of the Duke of Buccleugh, Dumfriesshire, but not now found there (T. A.).

1782. *Scolopendrium vulgare*, Symons. Almost extirpated from several places in Kirkcudbrightshire by fern-hunters (J. M. A.). Extirpated from several places in the vicinity of Dumfries (J. W.). On the burns falling into Loch Ness there is now only one in which this plant is to be found, owning to the ravages of the itinerant fern-collector referred to under 1772. It still exists, however, in inaccessible stations (Gr.).

1783. *Woodsia ilvensis*, R. Br. Well-nigh extirpated by fern-hunters from the Moffat district (J. W.).

1787. *Cystopteris montana.* This plant, though not at present really uncommon round Aberfeldy, will not improbably be made very scarce by fern-collectors. It has disappeared altogether from one of the stations in which it was first found in Britain (F. B. W.).

1788. *Polystichum Lonchitis*, Roth. Almost extinct on Mealfourvouny Mountain, Inverness-shire, through the action of fern-collectors, and especially of the one referred to under 1772 and 1782 (Gr.). Has been cleared from the Raven's Rock, near Strathpeffer, Dingwall, Ross-shire, by summer visitors (T. A.). Was plentiful near Castleton, Braemar, formerly, but the guides learned that they could sell it at a shilling a plant, and it is now difficult to get (T· A.).

1803. *Phegopteris* (*Polypodium*) *Robertiana*, A. Br.; *Polypodium calcareum*, Sm. Once abundant in the *débris* of an old limestone quarry near Aberfeldy, but now nearly eradicated. Fern-hunting visitors and tourists are largely to blame for this, but the destruction has been completed by persons who collect ferns for sale. That the species is not altogether lost in the district is, however, shown by the fact that a few weeks ago a local fern-hunter was offering plants for sale, and at the same time plants of 1787 *Cystopteris montana* (F. B. W., July, 1887).

1806. *Osmunda regalis*, L. Has disappeared from Ballingear Glen, New Galloway, and from other places, as Colvend, through the ravages of fern-hunters (J. M. A.). Extirpated from several localities in the vicinity of Dumfries (J. W.). Has entirely disappeared from Loch of Park, and nearly from the cliffs south of Aberdeen, in both of which localities it was formerly plentiful. Fern-collectors are mainly responsible (J. W. H. T.).

1809. *Botrychium Lunaria*, Sw. Formerly very local in the Pentlands; now extirpated (G. A. P.).

1818. *Equisetum hyemale*, L. Extinct in Mid-Aberdeen (J. M.).

## JOHN BALL, F.R.S.

To give in a short space an adequate account of a long and varied life is never an easy task. And in my own case it is not made easier by the fact that my own personal acquaintance with Mr. Ball only dates back some fifteen years. Yet I would not willingly relinquish to another hand the task imposed on me by the Editor of putting together such facts as I have been able to collect in memory of one whom I shall ever regard as the most gentle, kind, and sympathetic of men.

John Ball was the eldest son of the Rt. Hon. Nicholas Ball, sometime M.P. for Clonmel, Attorney-General for Ireland, and afterwards a Judge of the Irish Court of Common Pleas. He was born in Dublin on August 20th, 1818, and was educated at Oscott, from whence he proceeded to Christ's College, Cambridge. His name appears in the list of wranglers in the mathematical tripos for 1839, but, being a Roman Catholic, he was then unable to take a degree. Christ's College is memorable to botanists as the place where Darwin and Berkeley also received their University education. In later years its botanical traditions have been renewed in Vines and Marshall Ward; and Francis Darwin, though educated at Trinity, is now one of the Fellows. The elder Darwin went to Cambridge in 1828, and was therefore in a University sense a good deal senior to Ball. I am not sure that, in after life, the two men ever even met, though in disposition and pursuits there was so much that would have seemed almost destined to draw them together.

But, like Darwin, Ball owed the bent which he received for scientific studies to Henslow. That there was something almost akin to genius in the skill with which this remarkable teacher picked out the right men, and in the fascination which he exercised over them, I can hardly doubt. For we know, from Darwin's life, that it was effected not by academic teaching in the lecture-room, though that was clear and excellent, but by personal contact in excursions about Cambridge, in which the charm of every aspect of field Natural History was brought to bear upon delighted pupils. Cambridge to this day retains not a little of this tradition of direct personal influence. But it must have been strong in Henslow's hands if it rescued Darwin from being an "idle sporting man," and sobered the "wild Irishman" which those still living remember in Ball. He must, however, have had some previous scientific proclivities, as he accompanied Prof. Babington to the West of Ireland in 1835, an expedition of which the latter has given an account in the ninth volume of 'Loudon's Magazine.' In this he refers to J. Ball, of Christ's College, as a geologist.

I find amongst Sir W. Hooker's correspondence a letter (probably about 1841) written on the point of a journey on the continent, in which he says:—"I intend studying in their native places the foreign species of *Hieracium*, a genus to which I have a good deal attended. I should much wish, if not too difficult a task, to do something for that troublesome genus."

In 1843 Ball was called to the Bar, but, like Bentham, never practised. In 1846 he was appointed Assistant Poor Law Commissioner. After severe work in Munster and Leinster he resigned from ill health in 1847, and went abroad. In 1849 he was again appointed, this time as Second Commissioner. It was during the famine that he formed what was to be a life-long friendship with the late Mr. W. E. Forster. In 1852 he resigned, and was elected as Liberal member for Carlow.

In 1855 he accepted office under Lord Palmerston as Under-Secretary of State for the Colonies. He held office but for two years; but in after life he claimed, and with justice, that he had effected something in the meantime for scientific interests. A Colonial Minister can do much for the numerous botanical establishments scattered over the empire, and I find plenty of evidence that Ball did not leave their claims uncared for. He seems to have warmly supported Sir John Bowring in establishing the fine Botanic Garden at Hongkong. In 1856 the Government sanctioned a scheme for the preparation of a series of Floras or descriptions in the English language of the indigenous plants of British Colonies and Possessions. I have always understood, from what fell from him, that Ball had a chief hand in effecting this. To him also was due the despatch of Capt. Palliser's expedition to British North America, which first brought Sir James Hector to the front, and to which Ball succeeded in getting Bourgeau attached as botanist. I believe I am right in stating that a remote result of this expedition is the present Pacific Railway.

In the general election for 1858 Ball contested the city of Limerick; but he met with the fate which has not seldom befallen Irish Liberal politicians whose views have developed less rapidly than those of their party. He was defeated, and at once retired from public life. That he felt the disappointment keenly I have no doubt; but he never gave expression to this in a touch of bitterness, or ever referred to his electoral experiences, except for the sake of some good-humoured story. He cheerfully accepted his fate, and botanical and geographical science gained perhaps in the long run more than the political world lost. In 1856 Ball joined the Linnean, and in 1868 he was elected to the Royal, Society.

In a lecture delivered to the Royal Geographical Society in 1879, Ball remarks:—"A passion for mountain-scenery led me from my youth onwards to pass much of my time in the Alps, and to visit other mountain districts, such as the Carpathians, the Pyrenees, and the mountains of Southern Spain, to say nothing of the hills of our own islands." From a very early period he must have worked at the exploration of the Alps with astonishing assiduity: and I find it difficult to account for the time which he must have devoted at the busiest part of his life to their minute topographical examination. Alpine travel forty years ago was almost inconceivably different from what it is now. The best maps were inaccurate; means of locomotion were of the roughest, and inns there were none. I find that Ball was at Zermatt in 1845; its very existence was then almost unknown to civilized Europe. He has often told me that there was no lodging to be had, except at the doctor's, and this consisted of but three communicating rooms. On this, or some other occasion, he was occupied in the outer of the series after a hard day's collecting, when his door was thrown open to admit Boissier, with Madame de Gasparin and her sister, who had no other means of access to their own rooms beyond.

The results of Ball's alpine work were published in the well-known 'Alpine Guide' (1860–65). Guide-books are so often mere compilations, that the production of one may seem to many no great feat. But Ball's book was in truth an essentially original investigation, in which all the resources of an accomplished naturalist were brought to bear upon a problem in scientific topography. The reputation of the book gains rather than diminishes by time. I cannot do better than quote from the most recent historian of Swiss travel, Mr. W. A. B. Coolidge, the following opinion of its merits:—"Speaking for myself, I may say that I have had twenty years' experience of this guide-book in those parts of the Alps least known even to Mr. Ball: and I wish to place on record my profound admiration of the amazing success with which the author has firmly grasped the main lines of the topography of the most unfrequented districts; so that all his followers have had to do is to fill in the outline sketched by so masterly a hand. While Mr. Ball devotes his book in the first instance to climbing pure and simple, he is ever on the look-out for the geological and botanical phenomena of each district."

There is a curious story which illustrates the minuteness of of Ball's topographical knowledge. In 1866 the Italians were baffled in an attack on one of the Austrian forts in the Trientino. Ball, whose sympathies were always deeply Italian, furnished the Italian staff with a plan of campaign, which was acted upon with immediate success, and for which he received the warm thanks of the Italian War Office.

About 1859 I find Ball writing to Sir W. Hooker:—"I am working at a book in which I want to put the results of many years' wanderings—the title to be something like 'The Mountains of Central and Southern Europe, and their Vegetation.'" The preparation of the 'Alpine Guide' seems to have superseded this project. But Ball never ceased to work at the distribution of alpine plants, and some of the results of his studies are given in the lecture, already referred to, "On the Origin of the Flora of the European Alps" (1879). In this he tells us:—"More than twenty years ago I began to tabulate the plants of the Alps, so as to show the distribution of each species within the range of the Alps, and on the mountains of Europe. As the southern side of the main chain has the richest and most varied flora, and was at that time less fully known, I divided it into fifty districts, and set myself to collect materials from published works, from public and private herbaria, and mainly from my own repeated visits—this part of the work involving, in fact, the preparation of fifty local floras." One cannot but regret that Ball never saw his way to a work on the Alpine flora; but some of his conclusions are indicated in the lecture. They were by no means in agreement with those which had been arrived at by Sir Joseph Hooker in his celebrated essay as to the relations of the Arctic and Alpine floras. This is not the place for a detailed criticism of Ball's views; some of them will probably never meet with general acceptance. What strikes me as important in them is his insistance on the persistence, and therefore great antiquity, of such floras as the Alpine. He points out "that a very large proportion of the Alpine flora is not easily diffused by existing modes of transport." This is a conclusion fundamentally opposed to that recently promulgated by Mr. Alfred Wallace. Ball, in Geographical Botany, has extended the geological doctrine of uniformitarianism, and therefore represents in some degree a reaction against the perhaps too facile tendency to regard floras as susceptible of wholesale transport. The same ideas are to be found applied to other problems in his various papers on South American Botany.

Ball joined the Alpine Club within a few weeks of its first foundation. He was at once appointed its first President (1858–60). Its first publication, 'Peaks, Passes, and Glaciers,' soon brought the Club into distinction; Ball was the originator, editor, and chief contributor to at any rate the first series, which soon ran through four editions.

In 1871 Ball accompanied Sir Joseph Hooker and Mr. G. Maw in an expedition to Marocco. The object was to investigate the flora of the Great Atlas, and determine its relations with those of mountainous Europe. If the results were in some degree negative, they were no less conclusive. The subsequent explorations of Mr. Joseph Thomson have shown that, though our knowledge of the species of the Atlas flora may be extended, its general facies has been ascertained.

The narrative of the journey did not appear till 1878, and is mainly from the pen of Mr. Ball. The story is charmingly told: not one of the least curious incidents is the account (p. 229) of the sacrifice of a sheep to Sir Joseph Hooker while busily engaged in arranging his collections. To Ball was also due the admirable working up of the collections made on the expedition in his 'Spicilegium Floræ Maroccanæ,' published in the 16th volume of the 'Journal of the Linnean Society' (1877). This was his *opus magnum* in Systematic Botany.

In 1882 Ball made a tour round S. America, of which he published an account in 1887 in his 'Notes of a Naturalist in South

America.'* In my judgment, for interest, vivid pictures of natural phenomena, and charm of style, there are few works that equal this, and hardly any that excel it. I place it confidently on my shelves, near to Darwin's 'Naturalist's Voyage.' My friend Mr. Morris met Mr. Ball on the steamer at Barbados, and he kindly gives me the following pleasing reminiscence of the encounter:—"As an instance of the influence which Mr. Ball exercised over those who came within his reach, I call to remembrance that while on the voyage to South America his ship touched at Barbados, where he went ashore. He was accompanied by a party of young men, who never before had taken much notice of plant-life. On this occasion, however, sharing the enthusiasm of Mr. Ball, they became ardent collectors of everything likely to be of use to him. In spite of the tropical heat, they did not return to the ship until it was about to sail, and they came back laden with specimens of all kinds, proud to share in Mr. Ball's pursuits. His charm of manner was irresistible, and he made friends wherever he went." This journey supplied the material for two important papers contributed to the Linnean Society: 'Contributions to the Flora of North Patagonia' (1884), and 'Contributions to the Flora of the Peruvian Andes' (1885).

This too-brief sketch of a life of persistent and intelligent activity will not allow me to go further into details of Ball's work. He was not a prolific writer of papers, though the number he produced in English and foreign journals is not inconsiderable. If he had a fault, it was that of excessive fastidiousness. He was much esteemed by continental botanists, and, though thoroughly imbued with modern English speculative ideas in biological science, his mode of work in systematic botany was rather that of the older continental school.

Last year it was painfully evident to his friends that he was failing in health. But no one foresaw more than the necessity of his spending his winters abroad. He went in the late summer to the Engadine; there he became seriously ill. He made his way with difficulty to Geneva for medical advice. His condition became so alarming as to necessitate his immediate return to England. He underwent an operation rather to palliate than to prolong existence, and from this he never rallied. He died at his house, 10, Southwell Gardens, at midnight on Oct. 21st, and was buried on Oct. 25th at the Catholic Church of St. Thomas, Walham Green. He was Treasurer of the Philosophical Club. A few years before his death he was elected an Honorary Fellow of Christ's College, Cambridge. Recent changes in the University had given his old college the power of conferring this distinction, which it had previously conferred on Berkeley, and which both greatly prized.

A man of independent means, Ball spent much of his time on the Continent, or in travel, when not residing in London. His singular charm of manner and disposition, as already remarked, made him fast friends all over the world. The simple but delightful hospitality of his house made it almost unique in London society. Men of literary, scientific, artistic, or political distinction met on equal terms as they meet in few other houses: and to dine with John Ball came to be regarded as a pleasure which few would not take some pains not to forego. Wherever he moved, the almost sudden news of his death came as a personal blow to those who knew uhim. All such view with sorrow their inevitable severance from the most loveable of friends.

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* From Buenos Ayres Mr. Ball introduced into European gardens the fine aquatic *Sagittaria montevidensis* (Bot. Mag. 6755).

W. T. Thiselton Dyer.

# BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS.

By James Britten, F.L.S., and G. S. Boulger, F.L.S.

(Continued from p. 343.)

**Martyn, Rev. Thomas** (1736?–1825): b. Chelsea, 1736?; d. Pertenhall, Cambridge, 3rd June, 1825. Son of preceding. B.A., Camb., 1756. M.A., 1759. B.D., 1766. F.R.S., 1786. F.L.S., 1788. Prof. Bot., Cambridge, 1762. 'Plantæ Cantab.,' 1763. 'Catal. Hort. Cantab.,' 1771. 'Flora Rustica,' 1792–94. Edited Miller's Dictionary, 1803–1807. Pritz. 207; Jacks. 578; R. S. C. iv. 270; Gorham; Nich. Anecd. iii. 156; Nich. Illust. v. 752; Gent. Mag. xcv. ii. 85; Journ. Hort. xxi. 1876, 76, with portr. Painting by Russel, engr. by Vendramini, 1799, in Thornton's Botany, also engraved by Holl, 1799. Copy at Kew.

**Mason** (fl. 1696). Surgeon. Sent plants from Angola to Petiver (Mus. Pet. n. 176). Herb. Sloane, xxxii. pp. 99–118.

**Mason, Rev. Francis** (1799–1874): b. York, 2nd April, 1799; d. Rangoon, Burma, 3rd March, 1874. D.D., Brown University. In United States, 1818–1830. Missionary in Burma from 1830. 'Flora Burmanica,' 1851. Pritz. 207; Jacks. 379; R. S. C. iv. 276; 'Story of a working-man's life' (autobiog.), 1870; Ripley and Dana, Americ. Cyclop.

**Masson, Francis** (1741–1805 or 1806): b. Aberdeen, Aug. 1741; d. Montreal, Dec. 1805, or Jan. 1806. F.L.S., 1796. Gardener. First collector sent out from Kew. To the Cape, 1772–1773; the Canaries and Azores, 1778; the Cape and interior, with Thunberg, 1786–1795; New York and Montreal, 1798. 'Stapeliæ novæ,' 1796. Rees; Pritz. 208; Jacks. 144; [R. S. C. iv. 279, but by error]; Journ. Bot. 1884, 114, 144; 1885, 227; 1886, 335; Smith Lett. ii. 117, 183; Linn. Letters, ii. 559; Gard. Chron. 1881, ii. 333; Cott. Gard. viii. 286; Phil. Trans. lxvi.; Loudon, 'Arboretum,' 83. Plants and drawings in Bot. Dept., Brit. Mus. Oil portrait at Linn. Soc. *Massonia* L.

**Masters, J. W.** (fl. 1838–1848). Head Gardener, H.E.I.C. Garden, Calcutta, to 1838. 'Calcutta Flora,' Agric. Soc. India Trans. vii. (1840); 'Flora of Naga Hills,' Journ. Asiat. Soc. Bengal,

xiii. (1844); 'Plants of Upper Assam,' Agric. Soc. India Journ. vi. (1848). Plants at Kew. R. S. C. iv. 280.

**Masters, William** (1796–1874): b. Canterbury, 7th July, 1796; d. St. Peter's, Canterbury, 26th Sept. 1874. Nurseryman. Founded Canterbury Museum, 1823. Hon. Curator, 1823–1846. 'Hortus Duroverni,' ed. 3, 1831. Hybridised Passion-flowers, Aloes, Cacti, &c. Had garden arranged on Natural System. Gard. Chron. 1874, ii. 437. Bust by Weekes in Canterbury Museum.

**Mateer, William** (fl. 1836–1846). M.D. Prof. Bot. Belfast Academical Institution. Collected plants in North of Ireland. Stewart & Corry, 'Flora N.E. Ireland,' xv.

**Mathew, William** (fl. 1793–1825). Of Bury St. Edmunds. F.L.S., 1797. Contributed largely to Eng. Bot. 1793–1799.

**Mathews, Andrew** (d. 1841): d. Chachapoyas, Peru, 24th Nov. 1841. A.L.S., 1825. Gardener at Chiswick. Collector in Peru and Chili, 1833–1841: drew many of the plants he collected. Proc. Linn. Soc. i. 173; Lasègue, 255; R. S. C. iv. 282; Comp. Bot. Mag. i. 17, 305; Journ. Bot. 1834, 176; 1842, 392. *Mathewsia* Hook. & Arn.

**Mathews, John** (fl. 1788). Collected at Sierra Leone. 'Voyage to Sierra Leone,' 1788. Vallot, 'Études sur la Flore de Sénégal,' p. 24.

**Maton, William George** (1774–1835): b. Salisbury, 31st Jan. 1774; d. Spring Gardens, London, 30th March, 1835; bur. St. Martin's-in-the-Fields. B.A., Oxon, 1794. M.A., 1797. M.D., 1801. F.R.C.P., 1802. F.L.S., 1794. F.R.S. 'Uses of Pinus' in Lambert's 'Pinus,' pp. 65–82. 'Natural Hist. . . . of Western Counties,' 1797. 'Animals and plants round . . . . Salisbury,' in Hoare's 'South Wiltshire,' p. 654. 'Nat. Hist. Wilts' (posth.), 1843. Jacks. 259; R. S. C. iv. 285; Biog. Sketch, by Dr. Paris, 1838; Smith Lett. ii. 121; Munk, iii. 6; Nich. Illust. viii. p. xlv.; Gent. Mag. 1837, i. 173. Monument, Salisbury Cathedral. Bust at Linn. Soc. Portr. at Kew and at Royal Coll. Physicians. *Matonia* Br.

**Matthew, Patrick** (fl. 1831). Of Errol, Scotland. 'Naval Timber and Arboriculture,' 1831. Jacks. 207; R. S. C. iv. 294.

**Maude, M. F.** (fl. 1848). 'Scripture Natural History,' 1848. Jacks. 484.

**Maughan, Robert** (fl. 1809–1841). F.L.S., 1809. Went to London, 1840. 'List of . . . rarer pl. . . . of Edinburgh,' 1810. Orig. Memb. Bot. Soc. Edinb., 1836. Mem. Wern. Soc. i. 215, 626; R. S. C. iv. 298; Greville, Fl. Edin. vi.

**Maund, Benjamin** (1790–1863): b. 1790; d. Sandown, I. of Wight, 21st April, 1863. F.L.S., 1827. Druggist and bookseller at Bromsgrove, Warwicksh. Contributed to Phytol. i. 45. 'The Botanist' [with J. S. Henslow], 1837. Proc. Linn. Soc. 1863–64, xxx.; Pritz. 210; Jacks. 579; 'Botanic Garden,' 1825 (original drawings in Bot. Dept., Brit. Mus.).

**Mavor, Rev. William Fordyce** (1758–1837): b. New Deer, Aberdeen, 1st Aug. 1758; d. Woodstock, Oxon?, 29th Dec.

1837. LL.D., Aberd., 1789. Assistant in school at Burford, Oxford, 1775. Ordained, 1781. Vicar of Hurley, Berks, 1789; Stonesfield, Oxon; Rector and Mayor of Woodstock. 'Botanical Pocket-book,' 1800. 'Spelling-book,' 1801. Pritz. 210; Jacks. 35; Cott. Gard. viii. 221.

[**Mawe, Thomas.** Gardener to Duke of Leeds. 'Universal Gardener and Botanist,' published in his name, but written by John Abercrombie, 1778. Johns. Gard. Dict. 220, 222.]

**Mawson, Thomas William** (1850?–1876): b. 1850?; d. Burningham, Yorks., 16th Sept. 1876. M.D., Edinb. F.B.S.Ed., 1869. Went to Surinam. 'Ferns of Derwent,' Trans. Bot. Soc. Edinb. xi. Trans. Bot. Soc. Edinb. xiii. 10.

**Maxwell, E.** (d. before 1839). Lieut. 11th Dragoons. Collected in Kunawur, 1825. Royle, Illustr. 52. *Thalictrum Maxwellii* Royle.

**Maxwell, G.** (1805?–1880): b. 1805?; d. King George's Sound, 1880. Collector of plants and insects in Australia for thirty years; Gard. Chron. 1880, i. 433. Fl. Austral. i. 14. *Eriostemon Maxwelli* F. v. M.

**Maycock, James Dottin** (d. 1839–40). Resident in Barbadoes for many years. M.D. F.L.S., 1829. 'Flora Barbadensis,' 1830. Cat. of pl. in Halliday's 'West Indies,' 1837. Pritz. 210; Jacks. 369; Proc. Linn. Soc. i. 72; R. S. C. iv. 305. *Maycockia* A. DC.

**Meen, Margaret** (fl. 1790). Botanical artist. 'Exotic Plants from Royal Gardens at Kew,' 1790.

**Meeson, Henry Ashton** (fl. 1836–1846). Of London. M.D. Memb. Bot. Soc. London. 'On Formation of Leaves,' Ann. & Mag. iv. (1840), 137.

**Meller, Charles James** (1836?–1869): b. 1836; d. Berrima, Sydney, 26th Feb. 1869. M.R.C.S., 1857. F.L.S., 1867. Travelled in Africa with Livingstone, and in Madagascar. Superintendent, Bot. Gardens, Mauritius. Plants at Kew. Journ. Bot. 1869, 212; R. S. C. iv. 330; Proc. Linn. Soc. 1869–70, cii. *Mellera* S. Moore.

**Mellor, John** (1767–1848): b. Royton, Lanc., 1767; d. Royton, Oct. 1848; bur. Royton. "Father of working-men botanists of Lancashire." Hand-loom weaver and cotton-spinner. Afterwards working nurseryman. Member Rochdale Bot. Soc. Cash, 90; Cott. Gard. i. 74; Buxton, Bot. Guide Manchester, ix.

**Melville, Andrew Smith** (d. 1876). Of Galway. Lecturer on Bot. and Geology, Edinb. School of Arts, 1876. 'Athenæum,' July 22nd, 1876, p. 119.

**Melville, Robert** (1723–1809): b. Monimail, Fife, 12th Oct. 1723; d. 20th Aug. 1809. Brigadier-General. Governor of the West Indies. F.R.S. Founded St. Vincent Bot. Garden, 1765. Rose, Biog. Dict.; Appleton, Cyclop. Americ. Biog. *Melvilla* And. = *Cuphea*.

**Menzies, Archibald** (1754–1842): b. Weims, Perthshire, 15th March, 1754; d. London, 15th Feb. 1842. Gardener, Bot. Gard., Edinb. Assistant-surgeon, R.N. Surgeon and naturalist to Vancouver, 1790–1795. F.L.S., 1790. Discovered *Ribes speciosum*, 1779. Introduced *Araucaria imbricata*, 1796. Plants in Herb. Mus. Brit. and at Kew. Imperial Dict. of Univ. Biog.; Smith Lett. ii. 272; Fl. Tasmania, cxiv.; 'Bot. of Geol. Survey of California,' 553; Proc. Linn. Soc. i. 139; Lasègue, 366; R. S. C. iv. 345. Portr. at Kew, and oil portr. by Eddis at Linn. Soc. *Menziesia* Sm. *Abies Menziesii*.

**Meredith, Louisa Anne** (*née* **Twamley**) (1812–c. 1862): b. Birmingham, 1812; d. circ. 1862; m. Charles Meredith, 1839. 'Romance of Nature,' 1836, 'Wild Flowers,' 1838. 'Bush Friends in Tasmania,' 1860 (drawings and descriptions). Pritz. 213, 326; Jacks. 580, 615: 'Men of the Time,' ed. 1862.

**Merrett, Christopher** (1614–1695): b. Winchcombe, Gloucester, 16th Feb. 1614; d. Hatton Garden, 19th Aug. 1695; bur. St. Andrew's, Holborn. B.A., Oxon, 1634. M.D., 1643. F.R.C.P., 1651–1681. F.R.S., 1666. 'Musei Harviani custos.' 'Pinax rerum naturalium Britannicarum,' 1666. Plants in Herb. Sloane, 33, 34. Pult. i. 290–7; Pritz. ed. 1, 190; Jacks. 580; Wood, Athen. Oxon. ed. Bliss, iv., coll. 430–2; Munk, i. 258; Smith, Eng. Flora, i. pref. vii. viii.; Thomson's Hist. Roy. Soc. 22. *Merrettia* Gray.

**Merrifield, Mary Philadelphia** (*née* **Watkins**) (1804–1889): b. Brompton, London, 15th April, 1804; d. Stapleford, Cambs., 4th Jan. 1889; bur. Stapleford. Algologist. 'Nat. Hist. Brighton,' 1860. 'List of Marine Algæ at Brighton,' Phyt. vi. n.s. 513. '*Nitophyllum versicolor*,' Journ. Linn. Soc. xiv. 421. Jacks. 249; R. S. C. iv. 351; Journ. Bot. 1889, 160. *Merrifieldia* Ag.

**Meyrick, William** (fl. 1755 ?–1794). Of Birmingham. 'New Family Herbal,' 1789. 'Miscellaneous Botany,' 1794. Pritz. ed. 1, 192; Jacks. 200.

**Middleton, W.** (fl. 1812). Discovered *Senecio lividus*. Eng. Bot. t. 2515; Baines, Fl. Yorks., pref. Plants in Herb. Yorks. Phil. Soc.

**Miers, John** (1789–1879): b. London, 25th Aug. 1789; d. Kensington, 17th Oct. 1879. F.L.S., 1839. F.R.S., 1843. Grand Cross of Rose of Brazil. In S. America, 1819–1838. In Chile and La Plata, 1825. Travels in S. America. Monographs of *Burmanniaceæ*, &c., Linn. Trans. 1851, &c. '*Menispermaceæ*,' Ann. & Mag. 1864–67. 'Contributions to Bot.' 3 vols. 1861, 1869, & 1871. Herbarium of 20,000 sheets, and MSS. in Herb. Mus. Brit. Pritz. 217; Jacks. 580; R. S. C. iv. 382; viii. 402; Journ. Bot., with portr., 1880, 33; Gard. Chron. 1879, i. 522. Coloured photo. at Linn. Soc. *Miersia* Lindl.

**Mill, G. G.** (fl. 1844). Brother of following. On Dissemination of Seeds, and List of Marlow Plants in Phyt. i. (1844). R. S. C. iv. 387.

**Mill, John Stuart** (1806–1873): b. near Montrose, 20th May, 1806; d. Avignon, 8th May, 1873; bur. Avignon. M.P. for Westminster, 1865. Logician and economist. Contributed to

'Phytol.' from 1841, and N. S.; and to the 'Flora of Surrey.' Left MS. Notes for Fl. of Avignon. Found *Impatiens fulva* at Albury, 1822. R. S. C. iv. 387; 'Notices of his life and work,' 1873, 28; Journ. Bot. 1873, 191. Monument on Thames Embankment.

**Millar, Rev. James** (1762–1827): b. Ayr, 1762; d. Edinburgh ?, 13th July, 1827. M.D., Edinb. F.R.C.P., Edinb. Lect. Nat. Hist., Edinburgh. 'Guide to Botany,' 1818. 'Rose of Jericho,' Phil. Mag. lviii. 361 (1821). Edited 4th ed. 'Encyc. Brit.' Jacks. 36; R. S. C. iv. 387; Rose, Allibone.

**Millar, Robert** (fl. 1736). Central American and W. Indian plants, 1736, Herb. Sloane, 296–299, 316.

**Millen, William** (fl. 1854). Of Belfast. List of Belfast plants in Phyt. iv. 363; v. 185. R. S. C. iv. 388.

**Miller, Charles** (1739–1817): b. Chelsea ?, 1739; d. London, 1817. Younger son of Philip Miller. First Curator of Cambridge Bot. Gard., 1762–1770. Went to India, Sumatra, &c., 1770, and settled at Bencoolen. Experimented on cultivation of Wheat. Letters to J. Martyn in Bot. Dept., Brit. Mus. Gorham, 114; Account of Sumatra in Phil. Trans. lxviii. 160; Rees, under Philip Miller.

**Miller, John** (= JOHANN SEBASTIAN MÜLLER) (1715–1783): b. Nürnberg, 1715; d. London, 1783. Settled in London, 1760. Engraver. 'Illustratio System. Sexual. Linn.,' 1777. Pritz. 227; Jacks. 584; Rose. 5 vols. of drawings in Bot. Dept., Brit. Mus. Portr. by himself in 'Illustratio Systematis Linn.'

**Miller, John Frederick** (fl. 1776–1794). Son of preceding. 'Icones animalium et plantarum,' 1776–1794. Original drawings in Bot. Dept., Brit. Mus. Pritz. 217; Jacks. 112.

**Miller, John Samuel** (fl. 1817–1828). Nurseryman. A.L.S., 1817. Of Bristol. Herbarium in City Library, Bristol? ? Author of 'Nat. Hist. of Crinoidea,' Bristol, 1821. Dr. John Evans, 'Picture of Bristol,' ed. 4, 1828.

**Miller, Joseph** (fl. 1748). Apothecary. Demonstrator at Chelsea, 1740–1748. 'Botanicum Officinale,' 1722. MS. Icones Plantarum at Apothecaries' Hall. Herbarium in 22 vols. Pritz. 217; Jacks. 581; Rich. Corr. 188; Semple, 67.

**Miller, Philip** (1691–1771): b. Deptford or Greenwich, 1691; d. Chelsea, 18th Dec. 1771; bur. Chelsea Churchyard. Gardener at Chelsea, 1722–1770. "Hortulanorum princeps." 'Gardener's Dictionary,' 1731, 1807. 'Catalogue of Trees . . . near London,' 1730 (published anonymously). 'Catalogus pl. . . . in hort. Chelseyano,' 1730. 'Introduction to Bot.,' 1760. Herbarium of exotics bought by Banks, now in Mus. Brit. Rees; Pritz. 218; Jacks. 581; Gent. Mag. lxxvii. 1807, i. 520, 1828, June; Linn. Letters, i. 255; Nich. Illustr. i. 323; Semple, 79; Felton, 138; Cott. Gard. v. 157; vii. 109; Journ. Hort. xxi. 1876, 76; Loudon, 'Arboretum,' 81. Fancy engr. by Maillet in 'Dictionnaire des Jardiniers,' 1785. Portr. Kew. Inscribed column, 1815, in Chelsea Churchyard. *Milleria* L.

**Miller, Thomas** (fl. 1860). 'Common Wayside Flowers,' 1860. Jacks. 236.

**Millett, —.** (fl. 1834). Collected in Macao and China. M.D. Of Canton. Plants in Herb. Kew. *Millettia* Wight & Arn.

**Milligan, Joseph** (1807–1883?): b. Dumfriesshire, 1807; d. Tasmania?, 1883? M.R.C.S., Edinb., 1829. F.L.S., 1850. Of Hobart Town. Went to Tasmania, 1830. Proc. Linn. Soc. 1883–86, 36; Fl. Tasmania, cxxvii.; R. S. C. iv. 393. *Milligania* Hook. f. (1840) = *Gunnera*. *Milligania* Hook. f. (1853).

**Millington, Sir Thomas** (1628–1704): b. Newbury, Berks., 1628; d. 5th Jan. 1704; bur. Gosfield Church, Essex. B.A., Camb., 1649. M.A., 1657. M.D., Oxon., 1659. F.R.C.P., 1672; Pres., 1696. F.R.S. Sedleian Professor, Oxford, 1675. Royal Physician. Knighted, 1679. 'Machaon' of Garth's 'Dispensary.' Stillingfleet, Tracts, pref. xi.; Pult. i. 336; Munk, i. 363. Portr. at R.C.P. *Millingtonia* Roxb. = *Meliosma*. *Millingtonia* Linn. f.

**Milne, Rev. Colin** (1743?–1815): b. Aberdeen, 1743?; d. Deptford, 2nd Oct. 1815. LL.D., Aberdeen. Rector (non-resident) of North Chapel, Sussex. Preached Fairchild sermon. 'Botanical Dictionary,' 1770. 'Institutes of Bot.,' 1771. 'Indigenous Bot.,' 1793. Pritz. 218; Jacks. 581; Cott. Gard. viii. 185; Johnson, 232. *Milnea* Roxb. = *Aglaia*.

**Milne, Joshua** (d. 1851): d. Upper Clapton, London, 4th Jan. 1851. Actuary. F.L.S. Studied Mosses and Hepatics. Proc. Linn. Soc. ii. 136.

**Milne, Thomas** (fl. 1795–1837 or 1838). Curator Oxford Bot. Garden before 1796. A.L.S., 1795. Contrib. to With. Arr. ed. 3 (i. xii.).

**Milne, William Grant** (d. 1866): d. Creek Town, Old Calabar, 3rd May, 1866. Of Edinb. Bot. Garden. Botanist to Expedition of H.M.S. 'Herald' to Fiji, 1856. Collected on W. coast of Africa from 1862. Plants in Herb. Mus. Brit. Trans. Bot. Soc. Edinb. viii. 485; Journ. Bot. 1857, 106; 1866, 272; R. S. C. iv. 396; viii. 408; Gard. Chron. 1866, 731.

(To be continued.)

## SHORT NOTES.

ULOTA CALVESCENS Wils. MSS., Carr. (ULOTA VITTATA Mitt.).—In the last part of Dr. Braithwaite's most admirable work on the British Mosses, there is an unaccountable mistake as to a date, which affects the priority of the above-mentioned. In 1861, Dr. Carrington spent several months in the south of Ireland, and paid special attention to the *Orthotricha*. Amongst the numerous species collected was one which he determined as new, and as such sent to Mr. Wilson, who suggested the appropriate name *calvescens*; but it was first enumerated and defined fully in Dr. Carrington's "Gleanings amongst the Irish Cryptogams," published in the 'Proceedings of the Botanical Society, Edinburgh,' vol. vii. p. 370, 1863. Previous to this (in 1862), he had contributed a set of specimens to Rabenhorst's 'Bryotheca Europæa,' No. 520, under the MSS. name of *U. calvescens* Wils. Up to that time Mr. Wilson had looked upon it as a variety of *U. Bruchii* with smooth calyptra, but Dr. Carrington pointed out the earlier period of the fructification, and other well-marked characters. Through some oversight, Dr. Braithwaite has got the date of the paper as 1866, giving priority to Mr. Mitten's name, *U. vittata*, published in the Journ. Linn. Soc. vol. viii. p. 3, 1865. In the 'London Catalogue of 'British Mosses' (1881), *U. vittata* is given as a synonym of *U. calvescens*.—W. H. PEARSON.

I am indebted to the kindness of Mr. Pearson in sending me his note on *Ulota calvescens*, and correcting me in the priority of date for the publication of that name. I had quite overlooked Rabenhorst's 'Bryotheca,' for Dr. Carrington there gives an excellent diagnostic character for the species, and thus establishes the publication of the name in 1862. The synonomy will therefore stand thus:—

*Ulota calvescens* Wils. MSS. Carrington in Raben. 'Bryotheca,' n. 520, c. diagnose (1862); et in Trans. Bot. Soc. Edin. vii. 386 (read July 10th, 1862, published in 1863).

*Ulota vittata* Mitt. Journ. Linn. Soc. Bot. viii. 3 (read Nov. 5th, 1863, published June 20th, 1864).—R. BRAITHWAITE.

INTRODUCED PLANTS. — Notes such as that (p. 314) on the occurrence of *Lilium Martagon* in Worcestershire show how readily undoubted aliens can assume the habit of native plants when circumstances are favourable. It is a curious coincidence that a few days ago, Mr. J. L. Hopkins placed in my hands a fine specimen of this lily, which he had cut from a patch of three or four plants growing near the edge of a wood by a brook not far from Bishopsworth, North Somerset. This spot is remote from gardens, and the plant is very rarely seen in cultivation hereabout; but of course it has been introduced by some unknown accident, and that recently. It is not likely to remain, as the showy flowers, visible from a neighbouring footpath, invite the attention of passers-by, one or other of whom will assuredly "lift" it before long. Another instance, hitherto unpublished, of the introduction of an alien near Bristol, is that of *Omphalodes verna* Moench., of which there are several patches in a steep stony wood by the Avon near Hanham, West Gloucestershire, where I understand it has been known many years. Surrounded by Butterfly Orchis and *Ornithogalum pyrenaicum*, it looks thoroughly wild, although presumably derived from gardens on the top of the hill. The place is not easy of access, so this plant has probably come to stay and spread. The annual *Glaucium phœniceum* appeared this summer, thickly sprinkled among turnips, near Warmley, West Gloucestershire. I suppose it had been sown with the crop; but in this case there was no chance given of effecting a lodgement, as the plant was cut up in hoeing the field, and it is doubtful if the few individuals that escaped ripened any seeds.—JAS. W. WHITE.

RUBUS HYSTRIX IN SALOP.—Prof Babington has kindly named *Rubus Hystrix*, a bramble recently found by me in Whitecliffe

Wood, near Ludlow, in the county of Salop. Although abundant in some parts of Herefordshire, this is, I think, a fresh record for Shropshire.—ARTHUR W. WAYMAN.

A NORTHAMPTONSHIRE POTAMOGETON.—In Ray's 'Synopsis,' ed. 3, 148, "*Potamogiton folio angusto pellucide fere gramineo*, Dood. Syn. ed. 2, App. 341," is given as communicated by D. Morton [the author of the 'Natural History of Northants'] "de Oxendon in agro Northamptoniensi." This has been sometimes referred to *P. heterophyllus*. I have recently seen Morton's specimen preserved in Herb. Sherard at Oxford, and find it to be that small immature state of *P. crispus* to which Hudson gave the name of *P. serratus*.—G. C. DRUCE.

PLANTAGO MARITIMA L., FORM PUMILA Kjellmann, IN THE FAROE ISLANDS.—Referring to the list of additions to the Sutherlandshire Flora given in this Journal for April last, as observed in 1888 by Mr. Frederick Hanbury and myself, the form *pumila* of *Plantago maritima* was there signalized as occurring on Ben Hope at about 2600 feet, this being the first record in our Islands. Hitherto Cape Grebenig, Insula Wajgatsch, S. of Nova Zembla, the original locality where in 1875 it was discovered by Kjellmann and Lündstrom, had been the only recorded habitat; but now the Faroe Islands must be added. In June, 1889, it was gathered by Miss C. Birley and Miss Coupland, whom I had asked to make a collection of plants of these islands, at about 1000 to 1500 feet on the Isle Stromoë, and there reported plentiful. This variety, which has much superficial resemblance to *P. alpina* L., will no doubt be found in Iceland, Denmark, Norway, and throughout Scandinavia generally. Our forms of Plantain all require a closer study than they have yet received.—J. COSMO MELVILL.

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## *NOTICES OF BOOKS.*

*The Uses of Plants: a Manual of Economic Botany, with special reference to Vegetable Products introduced during the last Fifty Years.* By G. S. BOULGER, F.L.S., F.G.S. London, Roper & Drowley. 8vo, pp. viii. 224. 6*s*.

*The Useful Native Plants of Australia (including Tasmania).* By J. H. MAIDEN, F.L.S., F.C.S., &c. London, Trübner. 8vo, pp. xii. 696. 12*s*. 6*d*.

THE first book is not a satisfactory production, notwithstanding that the author has laid under contribution many of the best known and more recent books on the several branches of the subject on which it treats. The plan of the book looks well and promising in the table of contents, but lacks method in the substance. For example, anyone desiring information on Melons or Water Melons would naturally refer to fruits; but he must look through the whole article—not a long one, it is true—or refer to the index before finding it, and, when found, he is rewarded only with the following (p. 54):—

"Water-Melons (*Citrullus vulgaris* Schm.).—Oval, dark green, Cucurbitaceous fruits, with white flesh, are imported from the Mediterranean; whilst a considerable variety of Melons (*Cucumis Melo* L.) are cultivated under glass in this country."

Under "Oils and Oil-seeds," lists are given of the "chief" or "more important" drying and non-drying oils, and vegetable fats and waxes. Many of those mentioned, however, the author would have some difficulty in obtaining, as they are but very little known. Under "Dyes and Tanning Materials" (p. 162), Mr. Boulger states that the Madder (*Rubia tinctorum* L.) is a British plant.

The foot-note references on the several pages to works whence the author has obtained his information, together with the index, are useful.

In Mr. Maiden's 'Useful Plants of Australia' we have a book of a different stamp. The arrangement is similar to that of Mr. Boulger's, human foods and food-adjuncts coming first, then forage plants, drugs, gums, resins, and kinos; oils, volatile or essential, and expressed or fixed; perfumes, dyes, tans, timbers, fibres, and miscellaneous products. The plants referred to are arranged in alphabetical order under each of the above heads, the scientific names, which are printed in clarendon type, coming first, followed by the best-known synonyms; then the natural order, and references to the 'Flora Australiensis,' the common names and details of the uses of the plant, and its range of growth. In this way a mass of information is brought together in a very systematic manner, from which any given plant can readily be found. That the author has made himself acquainted with what has been already written on many of the plants referred to by him, and that he has judiciously selected those matters that are of value only, are proved by the many interesting facts recorded throughout the book.

The following illustration of the mode of treatment of each plant will suffice to prove the value of the book. In the division devoted to drugs, under the head of "Substances reputed medicinal," the uses of *Excæcaria Agallocha* are thus described:—"It produces, by incision in the bark, an acid milky juice, which is so volatile that no one, however careful, can gather a quarter of a pint without being affected by it. The symptoms are an acid, burning sensation in the throat, sore eyes, and headache. A single drop falling into the eyes will, it is believed, produce loss of sight. The natives of Eastern Australia, as well as those of New Guinea, &c., use this poisonous juice to cure certain ulcerous chronic diseases, *e. g.*, leprosy, but in Fiji the patient is fumigated with the smoke of the burning wood (*vide* Seemann, 'Flora Vitiensis'). In India the sap of the tree is called 'tiger's milk,' and is said to be applied with good effect to inveterate ulcers. The leaves also are used in decoction for this purpose. A good caoutchouc may be prepared from the milk." The plant is found from New South Wales to Northern Australia, and is known under the following common names: River Poisonous Tree, Milky Mangrove, or Blind-your-eyes.

Mr. Maiden has made his book still more useful by the addition of excellent indices of vernacular and scientific names. It is not too much to say that this is the best book on economic plants that has ever appeared in our colonies, and one that will be of great use to us at home.

In a work of such general excellence it seems ungracious to find fault, but the author will no doubt pardon our drawing his attention to a mistake on p. 59, where he gives *Mammea americana* as a synonym of *Barringtonia speciosa*, spelling it at the same time *Mammu.* Evidently *Mammea asiatica* L. is intended.

J. R. J.

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*Timber, and some of its Diseases.* By H. Marshall Ward, M.A., F.R.S., &c. London, Macmillan & Co. 1889. 8vo, pp. 295: 45 cuts. Price 6*s*.

*Diseases of Plants.* By H. Marshall Ward, M.A., F.R.S., &c. Society for Promoting Christian Knowledge. London, 1889. 8vo, pp. 196: 53 cuts. Price 2*s*. 6*d*.

Prof. Ward has written a very attractive book—one of the 'Nature' series—on timber and some of its diseases. The subject interests a large class of readers, botanists, foresters, and those who deal in and with timber after it has been felled and turned to account. The book is of handy size, nicely printed, and well illustrated with abundant figures, many of them original, and the others mostly after Hartig. Those who have given attention even of the superficial sort to the subject of forestry, and especially to the diseases of forest trees, all know that to Hartig, immeasurably more than to anyone else, we are indebted for knowledge of it. His brilliant researches are known to botanists from their bearing on the natural history of Fungi, and on such questions as the ascent of water in trees. Prof. Ward is therefore inevitably indebted mostly to Hartig in producing this book, and he nowhere fails to handsomely acknowledge it. But Prof. Ward has done much himself, and it is everywhere apparent that he is not merely telling us the story of other people's researches, but that he is familiar with the things he speaks of—to put it plainly, if baldly, that he knows what he is talking about at first-hand.

The first chapter deals with the general characters and structure of timber, and if anyone fails to understand the outlines of these after reading it, it will not be the author's fault. Chapter ii. treats of the properties and varieties of timber, and Chapter iii. of their classification, in the same plain and easy style. The fourth chapter possesses more value to botanists than any other part of the book. It deals with the greatly vexed question of the ascent of water in trees, and since there is hardly a botanist in Britain, or out of it, who has not grown weary of the interminable debate of recent years, and of the turgid accounts of experiments by long-winded (mostly German) authors, it may be hoped that a historical *résumé* of the business in its recent developments will be welcome to all. Prof. Ward has done this—he has read the whole of the literature ("alone he did it," one is tempted to say) and has picked out the point of each paper of importance, and now presents it as an animated narrative. One's first feeling, in fact, is of surprise that so much that is interesting has been buried away in the discussion. Prof. Ward has obviously gone out of his way to do this successfully and at length, and he deserves special thanks for it. In succeeding chapters he deals with the diseases of timber,—first with such as attack the living tree,—for example, *Trametes radiciperda*, *Agaricus melleus*, and *Polyporus sulphureus*, and next with those which attack it when down, for example, Dry Rot. We next have a lucid account of the cortex and bark of trees, and the healing of wounds by occlusion. Such "diseases of the bark" (as foresters term them) as canker come naturally next, and the larch-disease is selected for illustration. Then follows "leaves and leaf-diseases," which brings us to "pine-blister," *Coleosporium Senecionis* (*Peridermium Pini*), and this gives occasion to explain the seductive subject of heterœcism. Finally, there is a short chapter on the "damping off" of seedlings (*Phytophthora omnivora* being selected for illustration), thus dealing with a disease of timber *in posse*. Those who as yet have known only the somewhat formidable style of writing in which Prof. Ward delights to tell us of his original researches, have a pleasant surprise in store for them when they open this well-written, concise, and remarkably lucid little book.

The second book named in the heading, 'Diseases of Plants,' by the same author, appears as one of a series termed the "Romance of Science." It is difficult to imagine where the romance comes in when a subject like Plant-disease is being discussed, but if it should, one can easily understand its being a disagreeable feature! It is doubtful if even a publisher ever invented a more idiotic combination of titles than we have here. An intelligent (and literal) foreigner to whom this book was shown expressed something like horror that the Society for Promoting Christian Knowledge should deal in the Romance of Science! He was reassured (as we all are) on seeing Prof. Ward's name on the title-page.

This book is by no means prepossessing in appearance. The illustrations are about the worst of their kind. Those who know Prof. Ward's excellence as a draughtsman will be the more disappointed at finding any production of his so atrociously illustrated. Whether the drawings are "after" another authority or not, it is all one; they have been reduced to one abject level by some process or other. As to the text, if one had not just read 'Timber, and some of its Diseases,' and learned what Prof. Ward is capable of, undoubtedly this book would inspire friendlier feelings. It is good, it is correct, and for the most part clear enough, but it lacks the animation of the other. Here and there we have it, but for the most part the sentences are loaded with facts, and yet these are not given concisely. There is more of the detailed style of narration which is to be found in the author's scientific papers—cast, it is true, into simpler language—than of the happy grasp of prominent and critical facts to be found in the other book. If the reader were to come upon a sentence such as the following in 'Timber, and some of its Diseases,' instead of at p. 4 of the 'Diseases of Plants,' he would think the author had carelessly admitted the passage from some indifferent and muddled writer:—

"Ill-health may be a very real malady to the being who suffers it, and yet none other be prepared to call the sufferer diseased; and such a remark applies to living beings of all kinds, from oxen to mice, and from trees to mosses—they may be in a condition so dangerous and threatening to their own existence, that the least observant would agree to their being called diseased as soon as the fact was demonstrated to him, though otherwise he might go on never so much as suspecting that their health was affected."

This is prefaced by the remark that "most readers will probably agree generally with the following statements." So they might, if they only could understand them. It would be highly injudicious to combat anything so vague both in sense and in grammar. One is not surprised that the next sentence begins, "The explanation of this puzzle," &c., but it turns out that the *sentence* is not intended for a puzzle—only the sense. At the same time, it would be grossly unfair to the book to leave it with the implication that this is a specimen of its style. All that is meant is that it by no means comes up to the high standard of 'Timber, and its Diseases.'

The well-known types of Plant-disease and a few others less known are treated of, and a valuable amount of information is conveyed. Prof. Ward's name is a sufficient guarantee of the thoroughness with which this is done; and in point of fact there is no want of care as to accuracy. There is, besides, one thing in this little book which has been absent from previous general treatises on plant-diseases, except Hartig's,—the true pathological standpoint is held,—though here again with far less success than in the work on timber. This is probably to be explained by the limited character of the latter subject, and the better opportunity for an all-round view of it.

George Murray.

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*C. J. och C. Hartmans Handbok i Skandinaviens Flora, innefattande Sveriges, Norges, Finlands och Danmarks Ormbunkar och Fanerogamer.* 12th ed. Edited by T. O. B. N. Krok, with the assistance of eleven others. Stockholm. June, 1889. First Part, pp. 1–128. Price 2*s.*

The publication of the first part of this Flora, ten years after the 11th ed., and seventy years after the first, is an event for which British botanists may well be thankful, so closely is our Flora allied with that of Scandinavia. It is now desired merely to call attention to the commencement of the work, of which, when completed, we hope to give a careful analysis. Two or three matters will here only be noticed.

It seems a pity that, the system of Fries being abandoned, the modified one of DeCandolle, now usually taken up, should not have been used, instead of the somewhat hybrid one adopted, after "Bartling-Braunlichlereska." This first part commences with the Ferns and allies, the "Gymnosperms and Monocotyledons; Fluviales, Liliaceæ, Orchideæ, Typhoideæ, and Juncaceæ."

The Ferns and allies seem very well done. The Fluviales (by Dr. Almquist) are disappointing to those who know how carefully Dr. Tiselius has been working at the order ; it was hoped that he would have worked them out for this Flora, in which, however, his assistance is certainly acknowledged. One error should be corrected, as it gives further publicity to a mistake in Lange's 'Handbook of the Danish Flora.' Dr. Almquist has "*Potamogeton plantaginea* Du Croz (1818). *P. colnatum* Horn, Fl. Danica, fas. 25 (1823)." The date of t. 1449 (*P. colnatum*) is 1813, not 1823; as Lange himself shows in his Novum. Fl. Dan. p. 49.

The *Orchideæ* are by Dr. Almquist. The genus *Sparganium* (by Neuman) is a model of what such an account should be; the names and synonymy are such, that we are in no doubt as to what is intended. The *Juncaceæ* are by Lagerstedt and the editor. The other collaborateurs are H. Hjelt, O. Kihlman, E. Ljungström, A. N. Lundström, N. H. Nilsson, L. Schlegel, F. Svanlund, and U. B. Wittrock.

ARTHUR BENNETT.

WE note a recent addition to our local floras in the shape of a small pamphlet of 15 pages entitled 'The Flora of Maidstone,' by Henry Lamb. "It is not an exhaustive list," says the preface, and this is true, for the Rushes, Sedges, and Grasses are excluded, and there are no Cryptogams. "If the sale of the roots of the Primrose is carried on to the extent it is now, in about twenty years it will have become comparatively scarce." Primrose Leaguers, please note!

NEW BOOKS. — W. M. HIND, 'The Flora of Suffolk' (London, Gurney & Jackson: 8vo, pp. xxxiv. 508: map). — 'Anleitung zur Beurtheilung des Pferdehenes' (Gerai Untermhaus, Köhler: 8vo, pp. viii. 64, tt. 129).—W. WILSON, 'Practical Observations on Agricultural Grasses' (London, Simpkin & Marshall: 8vo, pp. 117: 1*s.* 6*d.*). — M. JUNGCK, 'Flora von Gleiwitz' (Gleiwitz, Neumann: 8vo, pp. x. 142). — T. ENGELBRECHT, 'Deutschlands Apfelsorten' (Braunschweig, Vieweg: 8vo, pp. x. 142),—L. DIPPEL, 'Handbuch der Laubholzkunde' (Berlin, Parcy: vol. i. 8vo, pp. viii. 450: 280 cuts). -- T. ENGELBRECHT, 'Deutschlands Apfelsorten' (Braunschweig, Vieweg: 8vo, pp. xvi. 778).—R. BLONDEL, 'Les Produits odorants des Rosiers' (Paris, Doin: 8vo, pp. 168, 1 plate). — F. LEUBA, 'Die Essbaren Schwämme und die Giftigen Arten' (Leipzig, Klotsch: part i. pp. 8, tt. 4). — J. G. BAKER, 'Handbook of Bromeliaceæ' (London, Bell: 8vo, pp. xi. 243: 5*s.*).--G. MURRAY, 'Catalogue of Marine Algæ of West Indian Region' (8vo, pp. 46, tt. 2: 2*s.* 6*d.*).-- C. VON ETTINGSHAUSEN, 'Das Australische Florenelement in Europa' (Graz, Lenschner: "1890": 4to, pp. 10, 1 plate). — F. G. KOHL, 'Kalksalze und Kieselsäure in der Pflanze' (Marburg, Elwert: 8vo, pp. xii. 315, tt. 8). — H. MAYR, 'Die Waldungen von Nordamerika ihre Holzarten' (München, Rieger, "1890": 8vo, pp. xii. 448, tt. 12).—A. DEFLERS, 'Voyage au Yemen . . . . Cat. des plantes recuillées' (Paris, Klincksieck: 8vo, pp. 247, tt. 6). — J. BEL, 'Les Maladies de la Vigne' (Paris, Baillière: 8vo, pp. 306, 11 cuts). — P. R. MOULINE, 'Etude de la Ramie' (Alger, "1890": Fontana: 8vo, pp. 72). — R. FISHER, 'Flower-land: an introduction to Botany' (London, Bemrose: 8vo, pp. viii. 240, 178 cuts: 5*s.*).—R. TURNBULL, 'Index of British Plants according to the London Catalogue' (London, Bell: 8vo, pp. ii. 98: 2*s.* 6*d.*). — 'Scientific Papers of Asa Gray, selected by C. S. Sargent' (London, Macmillan: 8vo, 2 vols. pp. viii. 397, 502: 21*s.*).

## ARTICLES IN JOURNALS.

*Annals of Botany* (III. 11, dated August, issued October).—D. H. Scott & G. Brebner, 'Anatomy and Histogeny of Strychnos' (tt. 2.).—F. O. Bower, 'Comparative examination of meristems of Ferns as a Phylogenetic Study' (tt. 5).—J. B. Farmer, 'Morphology and Physiology of Pulpy Fruits' (tt. 2).—S. H. Vines, 'Epinasty and Hyponasty.'—A. Ernst, 'Laminar enations from surfaces of leaves.'—E. J. Lowe, 'Propagation of Ferns.'—D. H. Scott, 'Distribution of Laticiferous Tissue in the Leaf.'

*Bot. Centralblatt* (No. 44).—C. Councler, 'Aschenanalysen verschiedener Pflanzen und Pflanzentheile' (Nos. 45, 46).—O. Loew & W. Bokorny, 'Ueber das Verhalten von Pflanzenzellen zu stark verdünnter alkalischers Silberlösung,' — C. Warnstorf, '*Sphagnum crassicladum*, sp. n.'—(Nos. 45, 46, 47). R. Keller, 'Das Potentillarium von H. Siegfried in Winterthur' (No. 46).—B. Blocki, '*Rosa Knappii*, sp. n.' (No. 48).—P.Kunth, 'Die Bestäubungseinrichtung von *Eryngium maritimum* und *Cakile maritima*.'

*Botanical Gazette* (Oct.).—G. T. Goodale, 'Protoplasm and its history.'—T. Morong, 'Paraguay and its flora.'—F. L. Scribner, 'Grasses of Roane Mountain.'—B. D. Halsted, 'Pollen of *Pontederia cordata*.'

*Botaniska Notiser* (häft 5).—A. Y. Grevillius, 'Om Fanerogam-Vegetationen på Ölands alvar.'—A. N. Lundström, 'Nyare undersökningar öfver domatier.'—R. Sernarnder, 'Om växtlemningar i Skandinaviens marina bildningar.'—G. Andersson, 'En ny fyndort för subfossila nötter af *Trapa natans*.'—F. Elfving, 'Om uppkomsten af taggarne hos *Xanthidium aculeatum*.'—E. Ryan, '*Scoparia Kaurini*, sp. n.'

*Bot. Zeitung* (25). — B. L. Robinson, 'Zur Kenntniss der Stammanatomie von *Phytocrene macrophylla* (Nov. 1, 8, 15). — H. Sohns Lanbach, 'Die Heimath und der Ursprung des cultivirten Melonenbaumes, *Carica Papaya*.'

*Bulletin Torrey Bot. Club* (Nov.).—D. F. Day, '*Subularia* in America.'—T. Meehan, 'Wave-growth of *Corydalis sempervirens*.'—E. L. Rand & J. H. Redfield, '*Pinus Banksiana*.'

*Gardeners' Chronicle* (Nov. 2).—*Nepenthes Burkei* Mast., sp. n. (fig. 69.)—(Nov. 9, 16, 23, 30). W. B. Hemsley, 'History of the

Chrysanthemum.'; *Aloe Monteiroi* Baker, sp. n.—(Nov. 16), *Adiantum Paradiseæ* Baker, *Bulbophyllum fallax* Rolfe, spp. nn. — N. E. Brown, 'Catasetums' (Nov. 23).—P. Sewell, 'School Botanical Gardens.' (Nov. 30). — *Liparis fulgens* Rolfe, sp. n.—R. A. Rolfe, 'Catasetums.'

*Journal de Botanique* (Oct. 6). —A. Franchet, '*Musa lasiocarpa*, sp. n.' — E. Heckel, 'Sur la germination des graines. — N. Patouillard, 'Champignons de la Martinique' (*Crinipellis*, gen. nov.).

*Oesterr. Bot. Zeitschrift* (Nov.).—J. Freyn, 'Plantæ Karoanæ.'—H. Zukal, 'Ueber die Entstehung einiger *Nostoc*- und *Glœocapsa*-Formen' (1 plate).—R. Wittstein, 'Studien über *Cephalanthera*, *Epipactis*, und *Limodorum*.' — F. Krasăn, 'Kalk und Dolomit in ihrem Einflusse auf die Vegetation.'—H. Sabransky, 'Beitrag zur nahrischen Brombeerenflora' (*Rubus Moravicus*, sp. n.). — C. Schilbersky, 'Zur Moosflora des Pester Comitates.'

## *LINNEAN SOCIETY OF LONDON.*

*Nov.* 7, 1889.—Mr. W. Carruthers, F.R.S., President, in the chair. —Messrs. Miller Christy, John Fraser, W. T. Rabbits and Col. Swinhoe were admitted Fellows; and Mr. Thomas Scott, of Leith, and Mr. A. J. Campbell, of Melbourne, Australia, were balloted for and elected.—Mr. H. Veitch exhibited a beautiful series of East Indian hybrid Rhododendrons, on which Prof. Henslow made some remarks on the effects of cross-fertilization in regard to colour and alteration of structure; observations also were made by Mr. Veitch, Prof. Bower, and Capt. Elwes.—Mr. E. M. Holmes exhibited and made remarks upon some new British Marine Algæ, describing their origin and affinities.—Mr. W. B. Hemsley then read a paper by General Collett, C.B., and himself, "On a collection of Plants made in the Shan States, Upper Burma."

Mr. G. C. Druce is preparing a Flora of Berks, which will include an account of the geology, meteorology, and topography of the county. The distribution of the plants through the neighbouring counties will also be given. The Flora proper will contain all the plants recorded as occurring in Berkshire, and their distribution through the county. He is extremely anxious to obtain the assistance of any botanist acquainted with any fact relating to the Flora of the county, either by reference to printed works, but especially to unprinted records of plant occurrence. It is only by such extraneous help that he can hope to make the Flora of the county fairly complete. His address is 118, High Street, Oxford.

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## CORRECTIONS.

Page 45, line 25 from bottom, *for* "Bristol," *read* "British."
47, 22 from top, *for* "1716," *read* "1671."
105, 19 from top, *for* "1882—3," *read* "1862—3."
113, 16 from bottom, *for* "bears," *read* "leaves."
125, 16 from bottom, *for* "Blomener," *read* "Blomeyer."
,, 27 from bottom, *for* "Peckott," *read* "Peckolt."
150, 12 from bottom, *for* "*Baltarea*," *read* "*Battarea*."
152, 11 from bottom, *for* "nr.," *read* "Mr."
156, omit line 10 from top: the species was not published until 1889.
169, lines 11 and 27 from bottom, *for* "Jevers," *read* "Ievers."
178, dele lines 7 and 8 from bottom (see p. 252).
180, line 23 from bottom, *for* "angel," *read* "priest."
185, 30 from bottom, *for* "Rev. W. Hunt Painter," *read* "Mr. J. W. Carr" (see p. 252).
193, 10 from bottom, *for* "1816," *read* "1888."
232, 22 from bottom, *for* "*melanocephalum*," *read* "*gracilentum*" (see p. 344).
233, 19 from top, *for* "Wharrul," *read* "Wharral."
276, 18 from top, *for* "Bermudas," *read* "Bahamas."
,, 30 from top, *for* "Holne," *read* "Hoxne."
317, 20 from top, *for* "directions," *read* "dissections."
382, lines 6 and 7 from top, *for* "*colnatum*," *read* "*coloratum*."

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